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JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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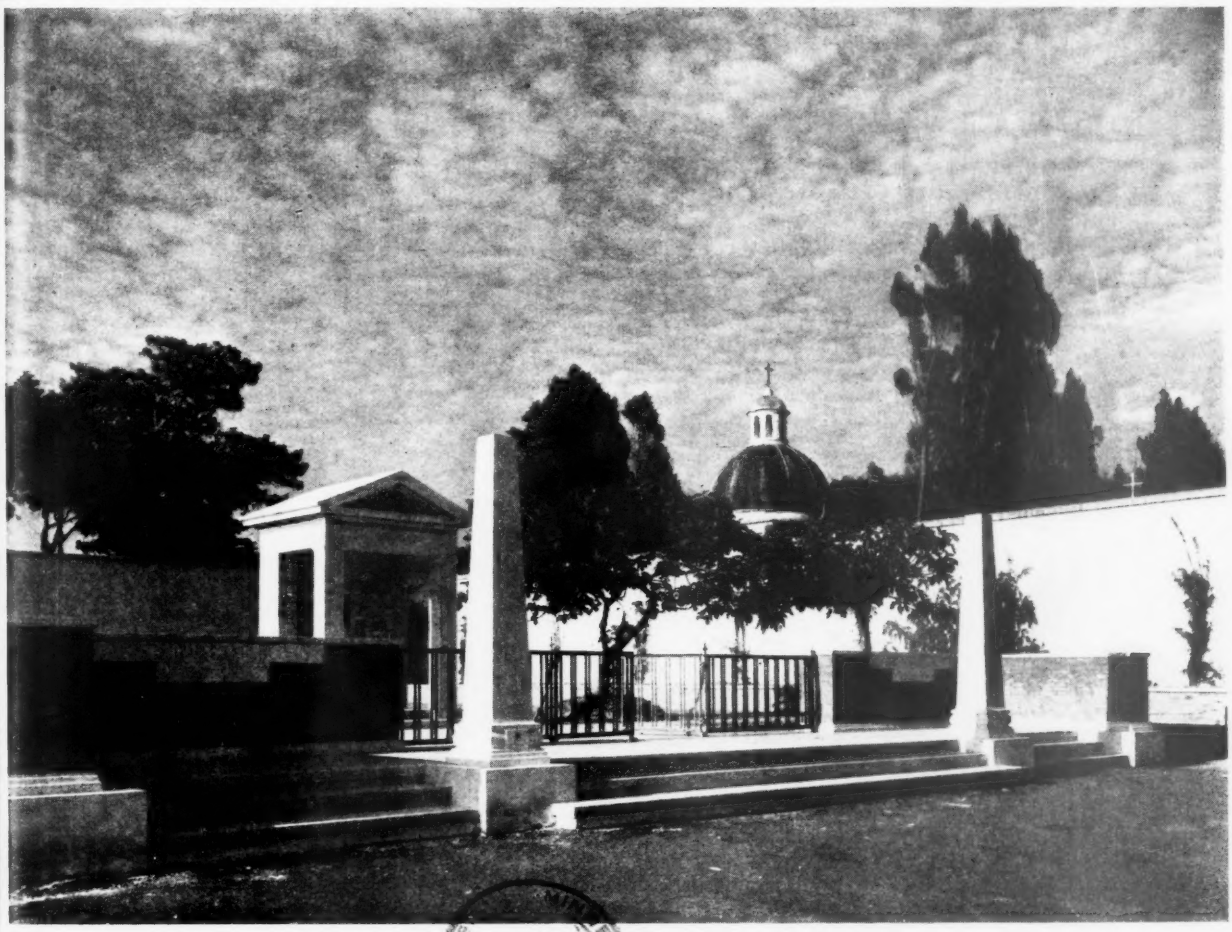

The entrance to Anzio War Cemetery. Architect, Louis de Soissons, O.B.E., A.R.A., S.A.D.G., M.T.P.I. [F]

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THE JOURNAL OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

THIRD SERIES VOLUME SIXTY NUMBER ELEVEN TWO SHILLINGS AND SIXPENCE
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SEPTEMBER 1953

The R.I.B.A. Session 1953–54

The card giving the programme of R.I.B.A. general meetings and science lectures in the forthcoming session is being issued to members with their copies of the Kalendar in October, instead of being enclosed with the September JOURNAL as in the past.

The President will deliver his Inaugural Address on 3 November. He will also present the London Architecture Bronze Medal for 1952 to Messrs. Farquharson and McMorran [*FF*].

On 8 December Mr. Siegfried Charoux, A.R.A., will deliver a paper on the relation of sculpture and painting to architecture under the title 'Building Without Grace: An Aggressive Examination'.

At the meeting on 5 January Mr. John Betjeman, whose writings on architectural subjects need no introduction to architects, will read a paper entitled 'Honour Your Forbears'. The Award of Prizes and Studentships will also be announced.

The first science lecture will take place on 19 January when Mr. H. F. Broughton of the Building Operations Research Unit of B.R.S. will deliver a paper on 'Building Economics and Builders' Plant'.

Students' night is 2 February. The President is to deliver his Address to Students and present the prizes. Mr. Basil Spence, O.B.E., A.R.A., A.R.S.A. [*F*], will give the Criticism. On the card being circulated to members it is stated that Professor Charles Madge will read a paper on 2 March. Since the cards were printed Professor Madge has had to go abroad for a year and therefore cannot give his paper.

The second science lecture is on 23 March when Mr. H. L. Gloag, A.A.Dipl. [*A*], and Mr. D. L. Medd, A.A.Dipl. [*A*], will give a joint paper on 'Changing Ideas on Colour with some Technical Implications'.

Following 'Gold Medal Night' on 6 April there is another science lecture on 13 April. Mr. P. T. Fletcher, B.Sc.(Eng.), M.I.Mech.E., who is Chief Mechanical and Electrical Engineer of the Ministry of Works, is to speak on 'Mechanical Installations for the Conveyance of Persons and Goods in Buildings'.

The Annual General Meeting takes place on 4 May and on 18 May a joint sessional paper on 'Architectural Criticism' is to be delivered by Mr. Ian Murray Leslie [*Hon. A*], Editor of THE BUILDER, and Mr. Ian McCallum, A.A.Dipl. [*A*], Editor of THE ARCHITECTURAL REVIEW. At the last general meeting on 15 June when the Council Election results are announced, there is to be a discussion on Model Building Byelaws.

Formation of Architects Division at B.R.S.

The Director of Building Research has announced the formation as from 1 August 1953 of a separate Architects Division. Hitherto architects on the Station staff generally worked individually in the scientific and information Divisions. While some will continue to work in this way, the remainder will form the nucleus of the new Division which is designed to conduct investigations of a predominantly architectural character and to carry out experimental building work incidental to the Station's other research requirements. Amongst the new Division's first commitments is the study of modular co-ordination and its implications for building design and construction.

Mr. William Allen [*A*] has been appointed Head of the Division and Mr. S. Meyrick [*A*] Deputy Head. Mr. Allen will also be responsible for professional matters affecting the architectural staff of the Station except that of the Colonial Liaison Officer's section.

Sullivan and the Skyscraper

Professor Henry Russell Hitchcock has written to us about the report of his sessional paper, 'Sullivan and the Skyscraper', published in the July JOURNAL. He says that the illustration of the New York skyline in 1876 (page 353) shows the first skyscrapers beginning to rise above the four- or five-storey level and that the caption as printed 'before the skyscrapers were built' is therefore not quite correct. He also points out that the captions of Figs. 6 and 14 (the Carson, Pirie and Scott building and the Troescher building) are interchanged. We regret the mistake and can only say in extenuation that Professor Hitchcock departed with his slides on a lecture tour before we went to press, so that we were unable to make a final check.

He also writes: 'I have received an extremely interesting letter from Mr. A. R. Paterson of 16 Cook Street, Liverpool, whose grandfather built that building, to which I referred in my lecture. He is able to give the name of the architect, who was a Londoner and not a Liverpudlian, Peter Ellis. Ellis also was the architect, as I surmised, of Oriel Chambers. Mr. Paterson's evidence indicates that 16 Cook Street was earlier than Oriel Chambers (1862) and not later, as I had reason to believe. But he also mentions another paper which indicates the date 1864, which was the precise date of Oriel Chambers, and gives the cost of the building as £2,410.'

Mr. John F. Groves [*Retd. F*] has also written informing us that the architect of Oriel Chambers was Peter Ellis. He adds that Ellis was regarded as being 'a little peculiar'.

R.I.B.A. Collection of Photographs of Architects' Work

The Council have decided to build up at the Institute a collection of photographs of architects' work with the following objects in view: (1) To form a record of work which is being done throughout the country and particularly to record some of the smaller and lesser-known work not normally illustrated in the technical press. (2) To form a basis for reference material for the press, for lecturers' and writers' illustrations, and for exhibition work.

In order that the collection may be kept within manageable limits at the start, architects who would like to contribute material to the collection are asked to comply with the following rules:—

1. All photographs must be addressed to the Secretary, R.I.B.A., 66 Portland Place, W.1, and packages should be marked in the top left-hand corner *Photograph Collection*.
2. Photographs should be unmounted and should be 10 in. by 8 in. in size and printed on glossy paper.
3. Not more than two separate jobs may be submitted per annum (i.e. between 1 January and 31 December).
4. Not more than three photographs or two photographs and one drawing of each job (drawings to be the same size as photographs to facilitate filing) to be submitted. Photographs which indicate as much as possible of the nature and character of the job will be preferred.
5. Up to 31 December 1954 architects may submit photographs of buildings completed any time since 1935 (but not earlier and not more than two jobs). After December 1954 no material should be submitted of buildings completed earlier than 1945. The decision to include work from 1935 onwards during the first year has been taken to allow examples of certain types of buildings to be included which have not been built since the war. Nevertheless, it is hoped that the bulk of material sent in will consist of photographs of recently completed work.
6. On the back of *each* photograph the following particulars should be given: (1) Name and address of architect. (2) Nature and location of job. (3) Date of completion. (4) Name and address and reference number of photographer. (5) Name and address of copyright holder. (6) State if a reference to the job has appeared in the technical press and where possible the name of the publication and date of such reference.

(*N.B.* No detailed information is to be submitted on any drawing unless subsequently requested.)

A formal acknowledgment of the receipt of photographs will be sent, but the Royal Institute cannot enter into any correspondence in connection with the submitted photographs, nor can they give any undertaking in regard to publication, display, retention or return of the photographs.

Photographs submitted will be displayed (without the name of the architect appearing) at meetings of the Public Relations Committee, where members will vote on the suitability of the photographs for inclusion in the collection. All photographs will, however, be retained for one year. The selected material will then be filed and a cross-index kept under (i) architect's name, (ii) building type and (iii) location. The Royal Institute feel that a collection established in this way can form, in time, a useful addition to the services which the R.I.B.A. can render.

Forthcoming Welded Structures Conference

A conference to review present knowledge of welded steel structures is to be held from 23 to 26 November inclusive at the Institution of Civil Engineers, Great George Street, S.W.1. It is being arranged by a joint committee of the Ministry of Works, Institution of Civil Engineers and Institution of Structural Engineers. A registration fee of £2 10*s.* will entitle members to take part, to receive advance copies of the papers and a copy of the proceedings in book form. Application before 1 October to the Joint Honorary Secretaries, Conference on Welded Structures, Institution of Civil Engineers, Great George Street, S.W.1.

Fiftieth Anniversary of the First Garden City

A dinner in honour of the fiftieth anniversary of the foundation of the first garden city at Letchworth is being held in the members' dining-room of the House of Commons on Friday 27 November 1953. This dinner, at which Lord Samuel will preside, is being organised by a committee representative of the Royal Institute of British Architects, Royal Institution of Chartered Surveyors, Institution of Civil Engineers, Town Planning Institute, Town and Country Planning Association and First Garden City Ltd.

Tickets at £1 11*s.* 6*d.* each from the Secretary, Letchworth Anniversary Arrangements Committee, 28 King Street, W.C.2.

The Silver Jubilee Building Exhibition

With the Duke of Edinburgh as Patron, the Building Trades Exhibition will celebrate its Silver Jubilee this year at Olympia. Mr. Howard Robertson, M.C., A.R.A., S.A.D.G., President R.I.B.A., will be President of the Exhibition. It is to be open from 18 November to 2 December inclusive.

Founded in 1895 by the late H. Greville Montgomery and H. C. Montgomery, the exhibition was continued by Mr. Hugh Montgomery, whose sudden and untimely death in 1951 came as a shock to his many friends. His very able wife, Mrs. M. A. Montgomery, with the assistance of her son Bryan, has organised this year's exhibition.

Mrs. Montgomery has kindly made available the usual room for the R.I.B.A. Club where members can rest after their long walks through the three halls of Olympia and obtain tea and light refreshments. She has also generously provided the Architects' Benevolent Society with free tickets of admission which will be sent to members with the October JOURNAL. Members are asked to make a special point of using these tickets in order to enter the exhibition because each one so used ensures a donation of 3*s.* 6*d.* to the Architects' Benevolent Society. The tear-off slip on the card entitles the member to free tea in the R.I.B.A. Club.

Activities of the A.B.S.

The stand of the Architects' Benevolent Society at the Building Exhibition this year is to be near the entrance to the R.I.B.A. Club in the gallery of the main hall. The space and the stand have been presented to the A.B.S. by Mrs. M. A. Montgomery. The Society is again to sell Christmas cards which, in the last two years, have brought in useful sums of money to A.B.S. funds. Elsewhere in this JOURNAL will be found miniature reproductions of the cards, the designs of which have been presented by the designers, together with particulars about ordering.

The A.B.S. Ball is to be held on Wednesday 9 December at the Dorchester Hotel. The Ball Committee, under the chairmanship of Mr. C. J. Epril [*F*], is busy with arrangements, details of which will be announced in due course. Last year the Ball produced more than £2,000 for the funds of the A.B.S. and the Committee hope this year to equal, if not to exceed that sum. The proceeds of the Ball go to the Centenary Fund for Old People's Homes.

The 'Home and Surroundings' Exhibition

The first copy of the exhibition is now on view at the Harris Museum Art Gallery at Preston until 1 October. It then goes to Halifax (6 to 22 October).

The second copy is on view at the South Eastern Gas Board Showrooms, Maidstone, until 3 October. From 7 to 17 October it will be at Canterbury in the Beaney Institute, High Street, and at another nearby centre from 19 to 27 October.

R.I.B.A. Diary

9–29 OCTOBER, EXHIBITION OF ARCHITECTURAL PHOTOGRAPHY. In collaboration with the Royal Photographic Society. Mon.–Fri. 10 a.m. to 7 p.m., Sat. 10 a.m. to 5 p.m. (*NOTE.* The Exhibition, which will be in the Foyer, will be *closed* on Tuesday October 13, owing to Council Meeting on that date.)

The Imperial War Graves Commission

Architectural Work following the 1939-45 War—Part I

The Royal Air Forces Memorial at Malta. Architect: Sir Hubert Worthington, O.B.E., A.R.A. [*F*]. Detail of the setting out of the inscription on a bronze panel at the base of the memorial column

THE IMPERIAL WAR GRAVES COMMISSION, which was incorporated by Royal Charter in 1917, is a British Commonwealth organisation; the participating governments are the United Kingdom, Canada, Australia, New Zealand, the Union of South Africa, India and Pakistan. The President is H.R.H. the Duke of Gloucester.

Since its early days after the 1914–18 war, under the inspiring leadership of the late Sir Fabian Ware, the Commission has been responsible for recording the names of over one and a half million soldiers, sailors and airmen of the Commonwealth, creating and maintaining the cemeteries and erecting memorials to those whose graves are not known. Wherever Commonwealth forces have fought or been stationed will be found cemeteries and memorials cared for by the Commission. They—the cemeteries and memorials—are located as far apart as Iceland and South Australia, Japan and the Azores, although they are naturally most numerous in the vicinity of the great battlefields of the two wars—in France and Belgium, Gallipoli, North Africa, Palestine and Italy.

Last year the Commission expended approximately £540,000 on the maintenance of the cemeteries and memorials of the 1914–18 war and £1,300,000 on constructional and maintenance work for those of the 1939–45 war, the latter work being as yet unfinished. These figures give an impression of the Commission's world-wide responsibilities. In addition to the headquarters staff it has employees—gardeners and maintenance teams—of many nationalities at work all over the world. Some of the work is carried out by local agencies, notably the Anzac Agency which operates in Australia and the Pacific. The work is, however, controlled from the Commission's head office in the United Kingdom.

It is the policy of the Commission to create cemeteries for and memorials of the war dead of the Commonwealth at or as near as possible to the places where they died. In consequence the cemeteries, though following a general pattern of design, have individual characteristics derived from the rocks and soil, the climate and vegetation of each locality as well as from the contours of the site. Each cemetery becomes a natural part of its surrounding scenery and no two are identical.

The consistent elements of the cemeteries are plain headstones in a garden setting, the Cross of Sacrifice (designed by Sir Reginald Blomfield) and the Stone of Remembrance (designed by Sir Edwin Lutyens). Although the architect responsible for designing a cemetery occasionally has some scope for individuality in gateways and ancillary buildings, his work is principally a matter of skilful landscaping and layout in embodying these elements. Imaginative use of the contours in forming levels, the design of retaining walls, the pattern of paths, lawns and flower beds, the placing of the larger trees and shrubs, the layout of approaches provide the lesser elements—in themselves deceptively simple—with which the architect must work.

The scheme of planting in each cemetery is given careful study. Indigenous species of trees, shrubs and flowers, chosen for their beauty of form and colour, are used in most cases; though where the climate permits, trees and shrubs from the country from which the dead came are imported; for example, blue gums have been planted in some cemeteries in Europe where Australians are buried. Planting is realised to be a long-term and slowly developing affair; in time, the slender, newly-planted saplings grow to full-sized trees; so that it may be thirty years or so before the cemetery achieves the form which the architect originally envisaged. This has now occurred with some of the cemeteries of the 1914–18 war in which trees have grown to maturity, giving height to the whole design and a contrast with the low lines of headstones. While many of the trees are flowering species, colour is provided mainly by the seasonal gardening. Some of the cemeteries are, however, sited in woodland surroundings so that they have the advantage of fully-grown trees from the start.

This subtle, restrained field of design seems to owe much to the tradition of English landscape gardening and perhaps something to the typical English churchyard. That this is so appears from the striking differences between these war cemeteries and those of other nations. It is a field of design in which we excel, a fact recognised by the world-wide admiration the cemeteries have received.

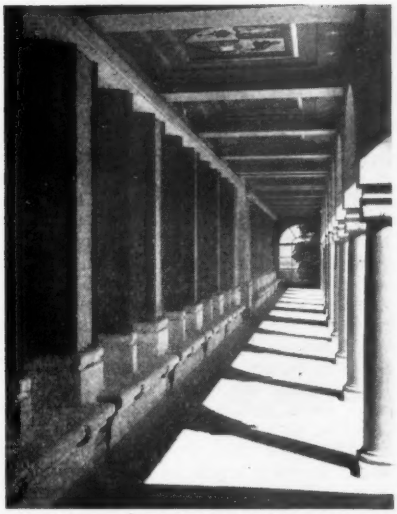
The memorials to the missing—to those who have no known graves—are on a different plane. In these, the architect has full scope for original, truly monumental design. The sole essential element is the provision of space for the inscription of names. Beyond that, questions of symbolism, form and materials are for the architect to consider unfettered. Thus the design of these memorials is largely a personal expression and they arouse far greater variation in approval than do the cemeteries.

Of the 1914–18 war the best known memorials are Blomfield's Menin Gate, Lutyens's towering arches at Thiepval, and Baker's Indian Memorial at Neuve Chapelle, though there are many others. Of the last war, perhaps the most outstanding so far erected is Mr. Maufe's memorial to the Missing of the Air Forces of the Commonwealth, recently completed at Runnymede. He has also designed additions to the 1914–18 Naval Memorials at Chatham, Portsmouth and Plymouth to carry the names of those who died in the 1939–45 war and who have no known graves.

Memorials are more significant in commemoration of the war dead of the Navy than is the case with the Army, because the sea is the grave of sailors. These memorials are located at or near the naval ports. Some of them have been designed as a result of architectural competitions organised by the Commission.

Space does not permit the illustration here of more than a few selected examples of the many cemeteries and memorials; choice has been restricted almost entirely to the work of the five principal architects employed by the Commission since the 1939–45 war. Mr. Edward Maufe, R.A. [*F*], who is Chief Architect and Artistic Adviser

[*continued on page* 433

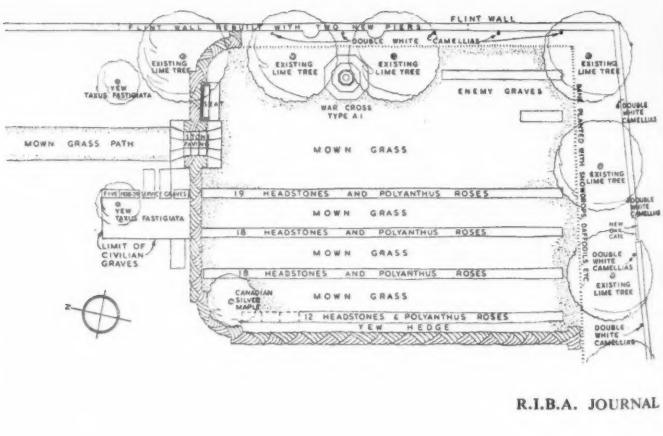


The cloister of the Air Forces Memorial. The names are inscribed on the splayed reveals of the windows

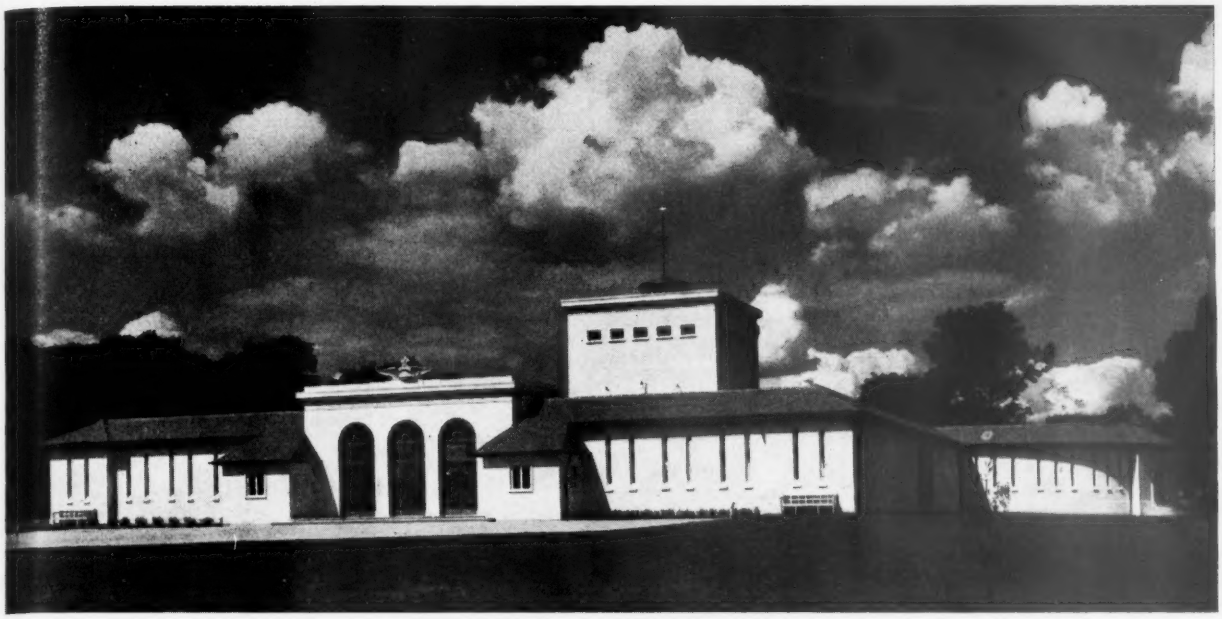
Right: the Air Forces Memorial at Runnymede, seen from the air. The Thames is in the background

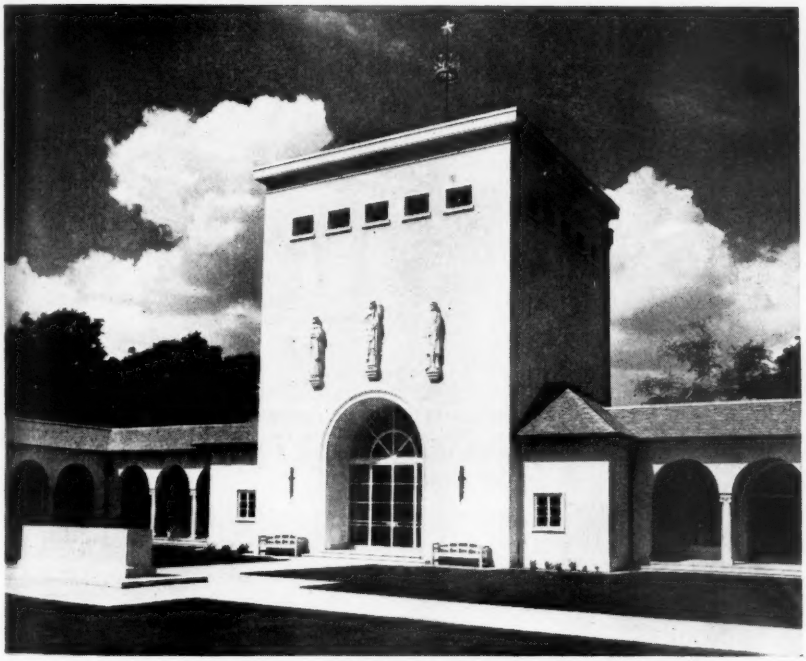
The R.A.F. section in Cambridge City Cemetery. Architect: Edward Maufe, R.A. [*F*]

View of the R.A.F. plot in Great Bircham cemetery



The R.A.F. plot in Great Bircham cemetery, Norfolk. This cemetery, which is close to Sandringham, was the first to be completed in this country after the 1939–45 war. The late King, accompanied by the Queen and the Princesses, unveiled the Cross of Sacrifice at a simple memorial service on 14 July 1946. This is a typical small cemetery; the plan shows how a feeling of repose is obtained by simple means and the careful placing of elements. The architect was Edward Maufe, R.A. [*F*]





Interior of the Air Forces Memorial, showing the Stone of Remembrance on the left

to the Commission, has designed many of the memorials and cemeteries in Great Britain. Sir Hubert Worthington, O.B.E., A.R.A. [*F*], is responsible for the North Africa area (Egypt, Libya, Tunis and Algiers); Mr. Louis de Soissons, O.B.E. A.R.A. [*F*], for Italy and Greece; Mr. P. D. Hepworth [*F*] for North-West Europe (France, Germany, Holland, Belgium and Norway); Mr. C. St. Clair Oakes, M.B.E., T.D. [*F*], for South-East Asia. In addition, the work in South Africa has been under the control of Mr. G. E. Gordon Leith, M.C. [*F*], advisory architect to the Commission. In this issue of the JOURNAL we illustrate work by Mr. Maufe, Mr. de Soissons and Sir Hubert Worthington. In a continuation in the October issue, that of Mr. Hepworth and Mr. St. Clair Oakes will be illustrated together with some of the naval memorials which were the result of competitions.

The memorial illustrated on these two pages is in memory of the officers and men of the Air Forces of the Commonwealth who lost their lives when operating from bases in the United Kingdom and who have no known grave. The architect was Edward Maufe, R.A. [*F*]. It consists of a shrine with a cloister embracing it, and is situated on the edge of a wooded hill overlooking the Thames, above the meadow of Runnymede. The memorial has curved wings, terminating in two look-outs, one facing Windsor, the other London Airport. The names of the missing airmen are inscribed on the stone reveals of narrow windows giving the effect of partially opened stone books, illuminated by light coming through the window slits.

In the centre of the cloister rests the stone of remembrance. Above the three-arched entrance to the cloister is a stone eagle with the R.A.F. motto and the inscription: 'In this cloister are recorded the names of Twenty Thousand Airmen who have no known grave. They died for freedom in raid and sortie over the British Isles and the lands and seas of northern and western Europe.'

Above the arched entrance to the Shrine are sculptured figures representing Justice, Victory and Courage, carved by Vernon Hill. Surmounting the whole is the Air Force crown with a golden star above. In the engraved glass of the great window two angels hold a scroll on which appear these verses from Psalm 139:—

If I climb up into heaven, thou art there:
if I go down to hell, thou art there also.
If I take the wings of the morning; and
remain in the uttermost parts of the sea;
Even there also shall thy hand lead me;
and thy right hand shall hold me.

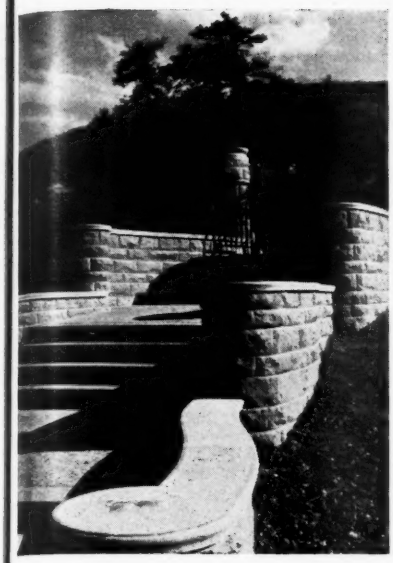
Chatham Naval Memorial. Above: one of the Portland stone pavilions terminating the walled enclosure. Below: the entrance gates. The sculptor of the figures at the gates and of the winged seahorses in the pediments was Mr. Charles Wheeler, C.B.E., R.A.

The original Naval Memorials at Chatham, Portsmouth and Plymouth were designed by the late Sir Robert Lorimer to commemorate the dead of the Royal Navy in the 1914–18 war who have no known grave. To commemorate the dead of the 1939–45 war, walls and terminating pavilions have been added to each by Mr. Maufe to embrace the original columns. The names of the dead, greater in number than those of the 1914–18 war, are inscribed in panels on the walls. The Chatham memorial was unveiled recently by H.R.H. the Duke of Edinburgh.

The design of the memorials at Portsmouth and Plymouth differs somewhat from that at Chatham. With these, advantage has been taken of slight slopes in the sites to obtain sunk gardens, thus avoiding high walls and ensuring that the distant view of the whole column is not impeded. Work on the Plymouth memorial is not yet completed; the Portsmouth memorial was unveiled this year by Queen Elizabeth the Queen Mother.

Side view of one of the pavilions at the Chatham Naval Memorial. The sculptor of the two figures flanking the pavilions was Mr. William McMillan, R.A.

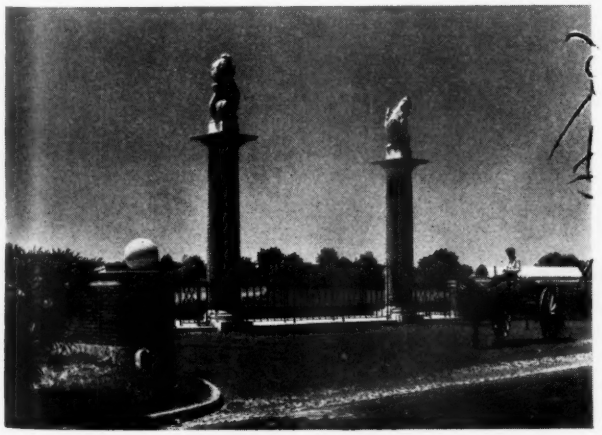
The Canadian Records Building at Brookwood Cemetery. Architect: Edward Maufe, R.A. [*F*]. The building, of Portland stone, was constructed by the Royal Canadian Engineers

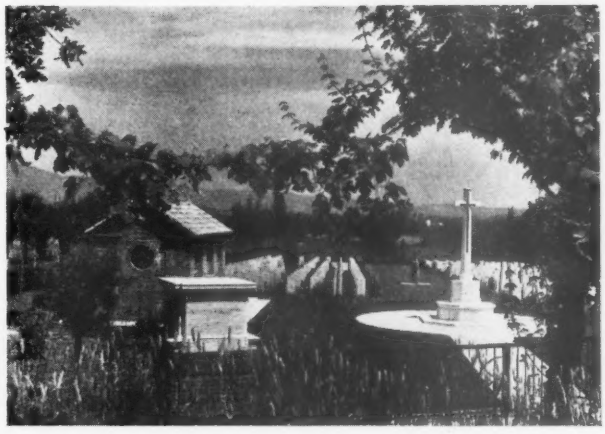


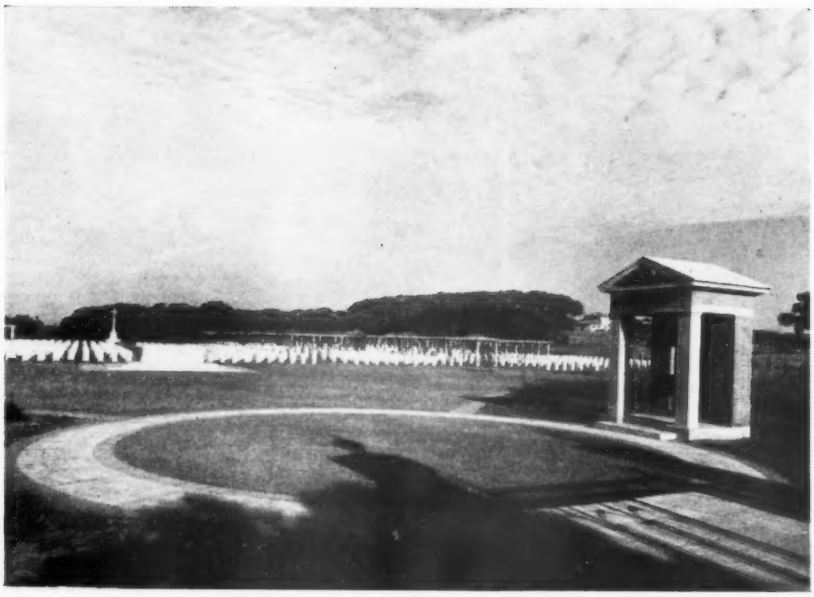
Above right: the Cross of Sacrifice at the South African cemetery at Castiglione, Italy. Above: detail of steps leading from the entrance gates down to the Cross. Right: general view of the cemetery at Castiglione

On this and the next three pages are illustrated a few of the many cemeteries designed by Mr. Louis de Soissons, O.B.E., A.R.A. [*F*]. The sites vary from level to the typical Italian steeply terraced hillside. Many are set amid olive trees and pines. Mr. de Soissons has made full use of the many splendid local stones and marbles and of the superb Italian masonry craftsmanship; the latter is revealed not only in the pleasing pattern of wall faces but specially in the beautifully delicate cutting of mouldings, details and lettering

Below: entrance gateway to the cemetery at Minturno. Right: the cemetery at Forana della Chiana seen from the road

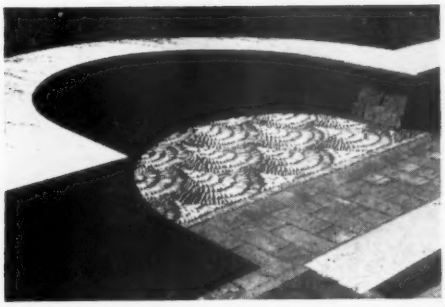




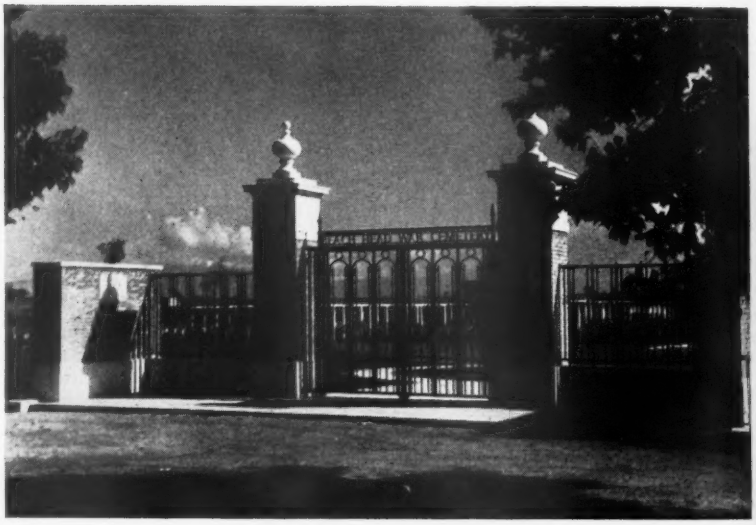


General view of the Beach Head War Cemetery at Anzio from near the entrance gates, the shadow of which can be seen on the right near the tempietto housing the register. Architect: Louis de Soissons, O.B.E., A.R.A. [*F*]

The entrance to the Beach Head War Cemetery at Anzio



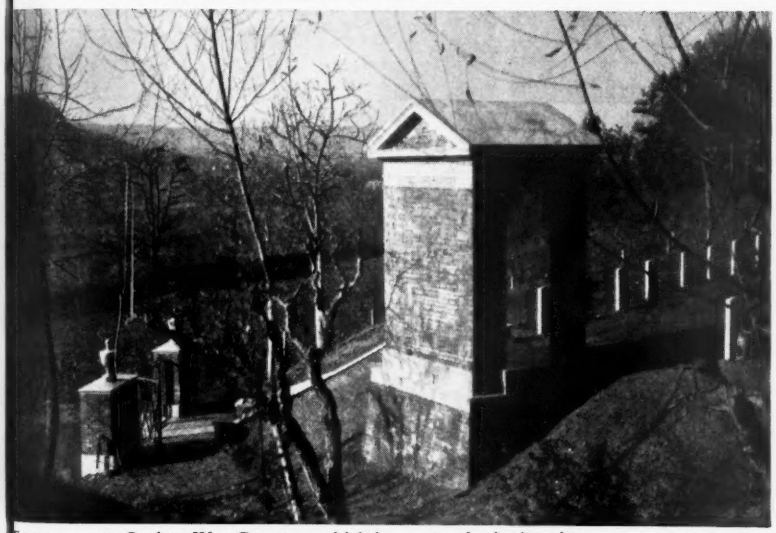
Detail of seat and paving at the Beach Head War Cemetery, Anzio



Below right: pavilion and graves at Faenza War Cemetery. Below left: a detail of the brickwork and travertine masonry. The bricks approximate in shape to the long Roman 'tegulae'

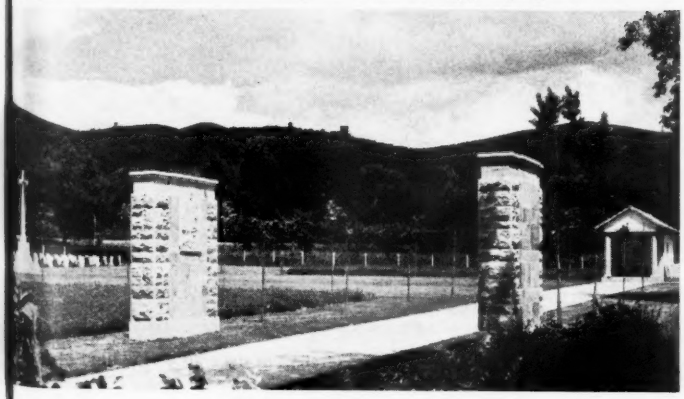
Pavilion to house the register at Villanova War Cemetery

Gates at Santerno Valley War Cemetery

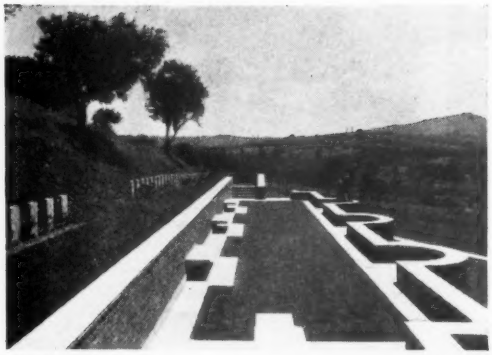


The entrance to Orvieto War Cemetery which has a steeply sloping site

Tempietto at Orvieto War Cemetery

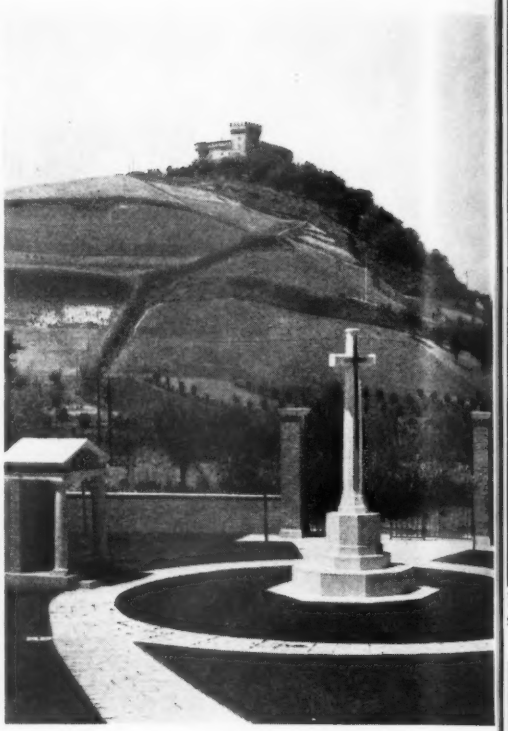


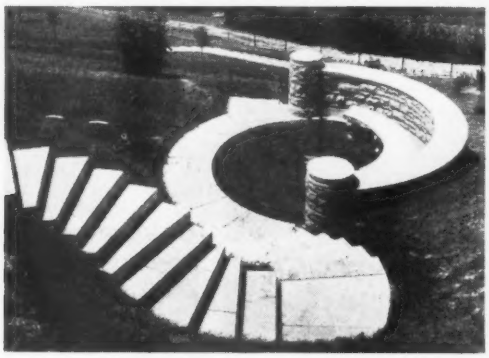
Caserta War Cemetery. General view on the left. Right, detail of a pier with sculptured figure of St. George by James Woodford, R.A. The architect for the cemeteries on these two pages was Mr. Louis de Soissons, O.B.E., A.R.A. [*F*]



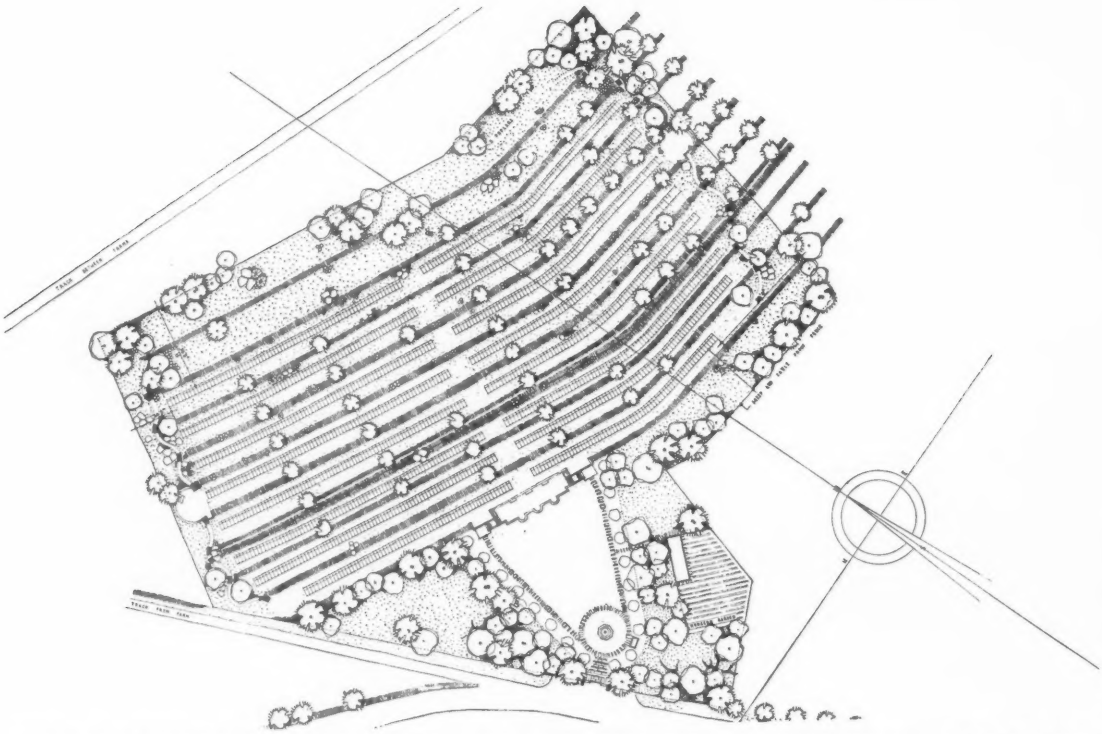
The formal terrace

Gradara War Cemetery. Architect: Louis de Soissons, O.B.E., A.R.A. [*F*]. The site is a terraced hillside approached from the road at low level. (See plan below.) The Cross of Sacrifice and the tempietto housing the register are at the entrance level; above is a formal terrace from which curved flights of steps approach the terraced graves at each end

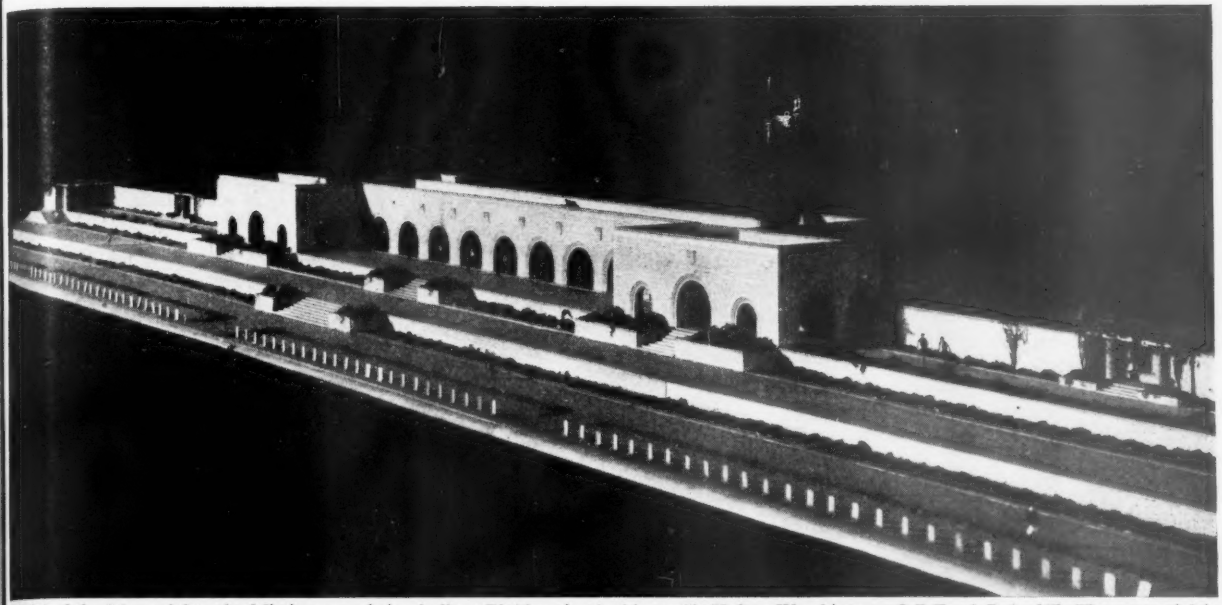




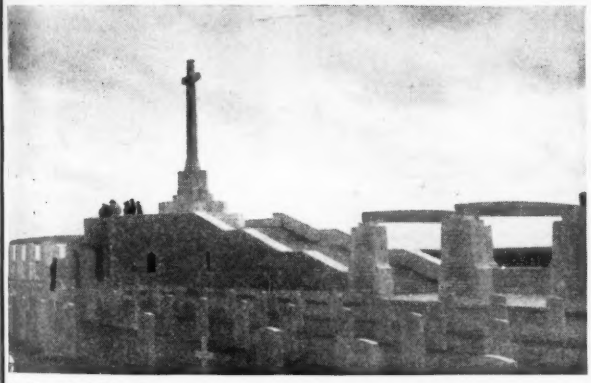
Typical seat and steps which approach the ends of the terraces of graves



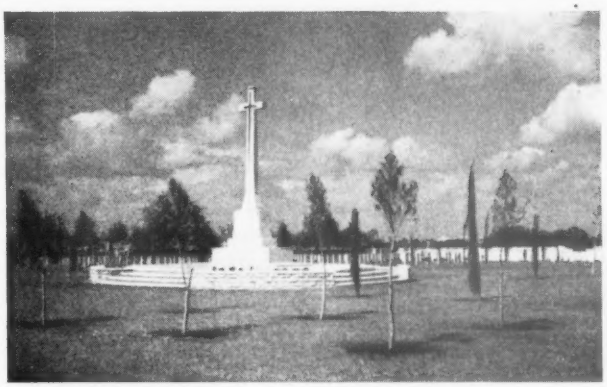
Gradara War Cemetery. Typical of a cemetery planned on a terraced Italian hillside. The flights of steps at the ends of the lines of graves were built 'by eye' by the masons, without drawings



Model of the Memorial to the Missing, now being built at El Alamein. Architect: Sir Hubert Worthington, O.B.E., A.R.A. [*F*]. The memorial is situated in the war cemetery



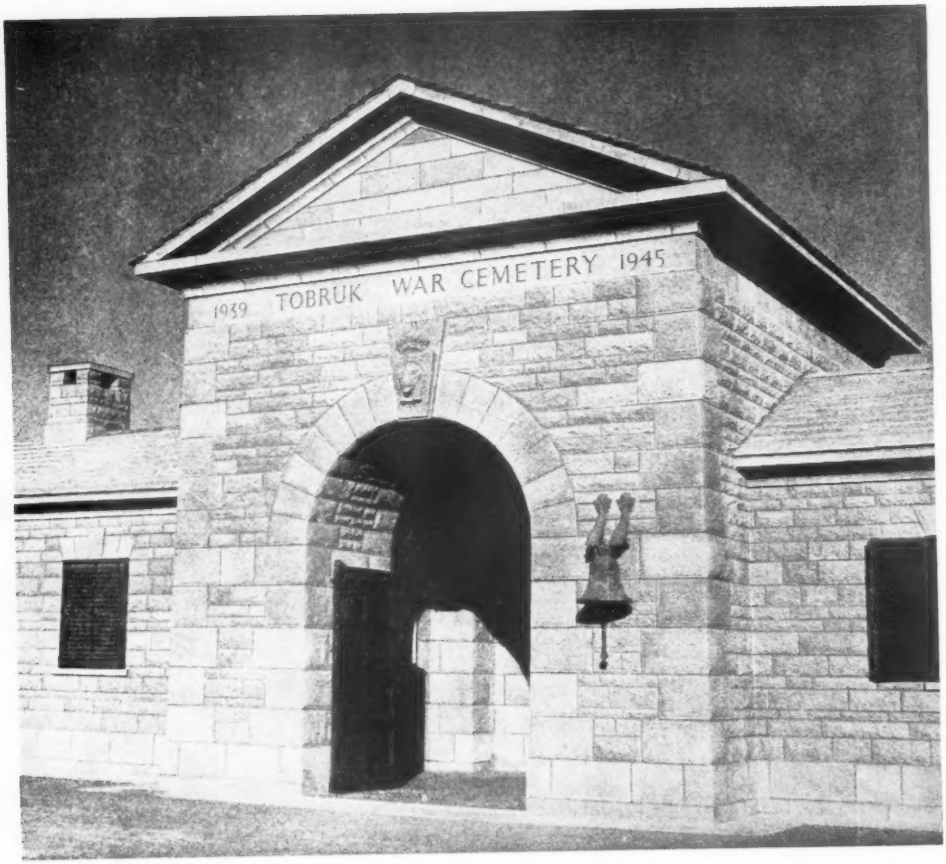
El Alamein War Cemetery



Heliopolis War Cemetery

Knightsbridge War Cemetery, Acroma, Libya. View along one of the pergolas

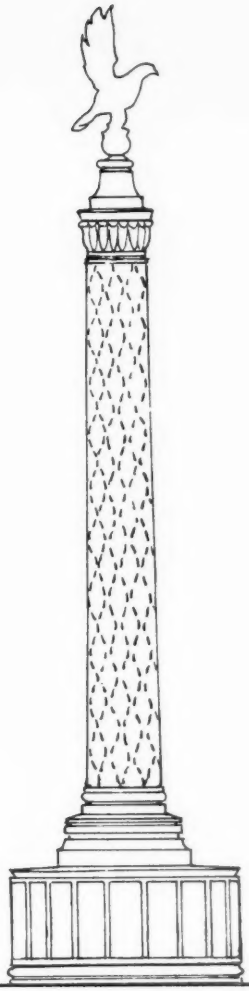
Moascar War Cemetery, Libya. The Cross of Sacrifice seen from the main entrance gateway



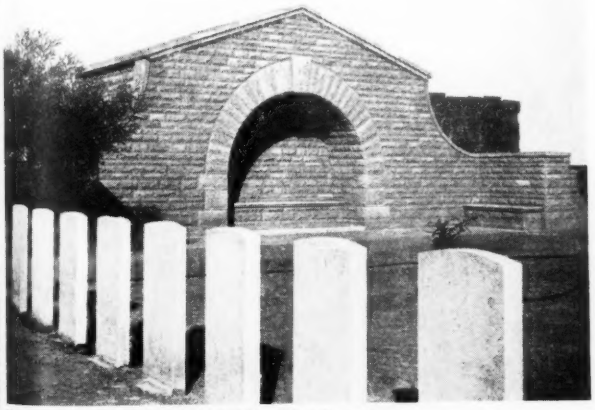
On the preceding page and these two pages are illustrations of memorials and cemeteries designed by Sir Hubert Worthington, O.B.E., A.R.A. [*F*]. Most are situated in desert country in North Africa where gardening is extremely difficult and depends on the presence of a water supply. Local stone is available in some places, notably in the Halfaya Pass.

Left: the entrance gateway to Tobruk War Cemetery, with the bell of H.M.S. Liverpool on bronze brackets in the form of dolphins. Below: one of the groups of lions by Mr. Charles Wheeler, C.B.E., R.A., who also modelled the dolphins

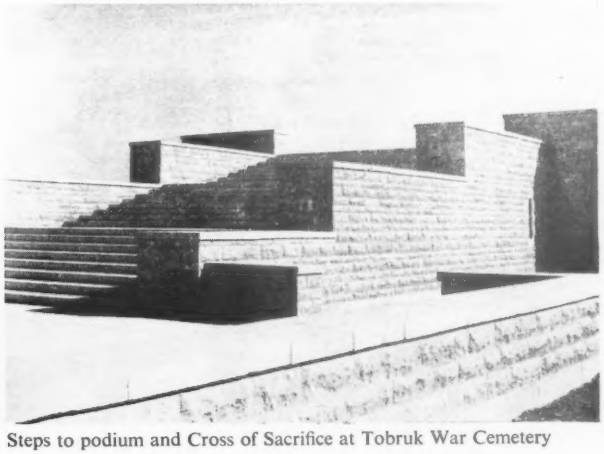
Halfaya-Sollum War Cemetery, the Cross of Sacrifice and pavilions for registers. The masonry is of an excellent building-stone from Halfaya Pass. The sculptured groups of lions are by Mr. Charles Wheeler, C.B.E., R.A.



The Royal Air Forces Memorial at Malta. Architect: Sir Hubert Worthington, O.B.E., A.R.A. [*F*]. The memorial is to those airmen of the Commonwealth who died on raid or sortie from Malta. It is 50 feet high and surmounted by a bronze eagle modelled by Mr. Charles Wheeler, C.B.E., R.A. The column is to be of travertine, the shaft incised with a light reticulated pattern which the drawing can do no more than indicate



Seat and graves at Knightsbridge War Cemetery



Steps to podium and Cross of Sacrifice at Tobruk War Cemetery

The Jubilee of Letchworth

Sir Ebenezer Howard, the Founder of Letchworth

SO MUCH ARE THE IDEAS of Sir Ebenezer Howard woven into the fabric of everyday housing and town development all over the world—ideas which were revolutionary to most people at the time when he stated them—that it is something of a shock to realise that it is only fifty years since they were first embodied in Letchworth.

Those who are old enough to think back to that time will remember how much it was generally accepted by the public that towns should grow by chance, that there should be districts for the houses of the well-to-do, areas of 'artisan' dwellings and, inevitably, slums. Sir Titus Salt, Lord Leverhulme and George Cadbury had shown that things could be different and that the 'working classes' could be adequately housed in planned, healthful surroundings. But it was Howard who advanced the practical idea that a town should be planned from the start to contain a balanced community—a community which owned and developed its own land and which was dependent partly on local industry and partly on agriculture; that the town should be consciously designed everywhere—even to the humblest cottage—with beauty, space and greenery as basic aims and that it should be surrounded by a green belt of land permanently used for agriculture or recreation. The extent to which such terms as 'balanced community', 'planned development', 'green belt', and many others have passed into current planning jargon is a measure of the influence of Howard's ideas.

Howard was a shorthand reporter who wrote a book setting forth his ideas; he had no money, but that did not deter him from starting to build a town which would embody them. He found he had many supporters and sympathisers, though few of them had money either. However, he purchased with great secrecy through agents an area of 3,822 acres from 15 different owners, at the same time forming a company, First Garden City Limited, with a nominal capital of £300,000. The deposits on the land purchases were paid out of the first subscriptions, but when the estate was formally inaugurated—an event which took place in a marquee in pouring rain—only £40,000 had been subscribed, barely a quarter of the purchase price of the land.

The project of Letchworth staggered through its early years with recurrent crises, but enthusiasm and adaptability on the part of its sponsors carried it through. In government circles it was derided. When Aneurin Williams, a Member of Parliament and one of the company directors, brought up the subject of Letchworth in the House of Commons it incurred the jibes of both Arthur Balfour and Lloyd George. The public were indifferent where they were not actively hostile. But the supporters maintained their enthusiasm even though they received no dividends on their investment for many years.

The company had the good fortune to engage Raymond Unwin and his partner, Barry Parker, as town planners and consulting architects. Unwin, who is now regarded as the father of modern town planning, was then 40 years of age and still comparatively unknown; his international fame and knighthood were yet to come. Barry Parker had a sound knowledge of the English vernacular tradition in house design. These two men translated Howard's generalised principles into the physical realities of plot sizes, street widths, industrial groupings and 'cottage' design and, although the mistakes inherent in a prototype were inevitably made, not many criticisms—and none serious—can be made of Letchworth as an essay in new town building, even when judged by present-day standards.

It is true that Unwin did not foresee the phenomenal growth in motor vehicle traffic, with its demands in the matter of parking and garage space and traffic circulation and intersections, which today seem almost to dominate town planning, but in 1903 practically no one else did either. It was not until much later that Henry Wright and Clarence Stein consciously considered motor traffic as an element in small town planning at Radburn; even then their planning owed much to Unwin and Letchworth, a debt they always acknowledged.

It is perhaps worth noting that Letchworth exerted its influence on British housing development—and consequently on similar development in other countries—very largely through the medium of the Tudor Walters Report. This report was mainly the work of Unwin who, at the time when it was produced, occupied a senior official position in the Ministry of Health, and it is not surprising that he brought before the Committee and embodied in the report the practical experiments which he had made at Letchworth and, later, at Hampstead Garden Suburb. Local authority housing in Great Britain really started with the Addison Act immediately after the 1914–18 war with the Tudor Walters Report as its 'bible', since when official housing policy has been a development from that firm basis. The effects of Unwin's pioneer work in housing development at Letchworth have indeed been profound.

Among the many other persons who

A corner of Lytton Avenue, a cul-de-sac with enclosed front gardens. Architect: Percy Houfton

Above: the Council Offices; architects, Bennett and Bidwell. Top left: a typical residential area with informal grouping and planting. Middle left: part of the shopping centre, planned before the 'motor age'. Bottom left: the paddling-pool in Howard Park

contributed to the success of the Letchworth project should be mentioned Thomas Adams. Adams was the first secretary of the company and fortunately he had a flair for public relations. While Letchworth was still struggling, he conceived the idea of holding a cheap cottage exhibition, the cottages to be erected at Letchworth, and he enlisted the help and support of the editor of THE SPECTATOR. The aim was a house costing £100 (a staggering thought in the light of present-day prices) and several were built for £150; it is worth noting that these houses are still sound and in occupation, though they have had their plumbing modernised and electricity installed, and some have been sold recently for as much as £2,000. This exhibition, and its successors, served to bring to Letchworth the many persons—landowners and others—who were primarily interested in producing cottages for workers, but who inevitably imbibed something of Howard's and Unwin's notions of how housing should be laid out and towns should be planned. As is well known, Adams went on to become an eminent town planner in his own right and one with an international reputation.

Like all new and revolutionary ideas,

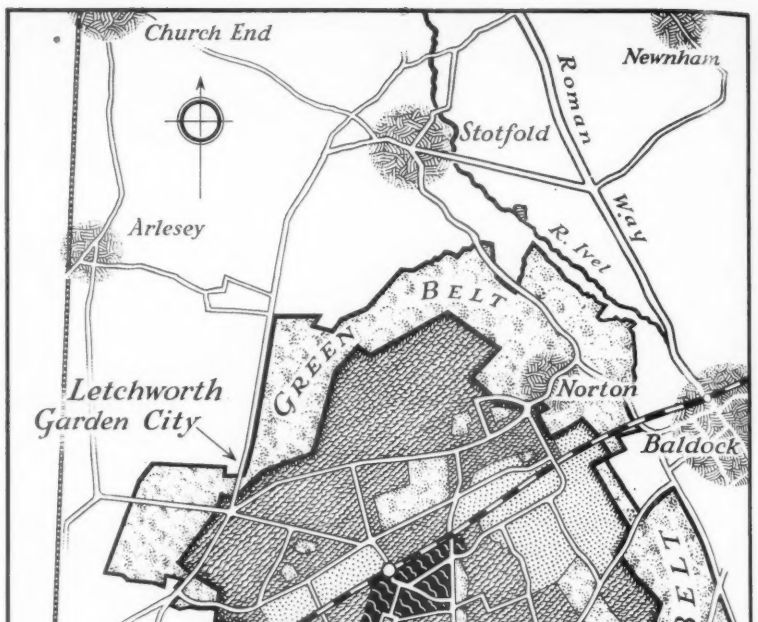
House in Wilbury Road. Architects: Barry Parker and Raymond Unwin

Letchworth was a fair target for the satirists. Inevitably the new town attracted as some of its residents persons who were discontented with accepted notions in fields of thought other than town planning, so that it became an acknowledged centre for believers in 'new thought', the 'simple life', theosophy, vegetarianism, dress reform, the 'hatless brigade', and the wearers of sandals and many other similar cults. Many of the ideas of these people who were in varying degrees of revolt against the stuffy conventions of their time have long been accepted by the generality of people, but at the time they afforded a superb series of handles for the satirists to grasp. In consequence the garden city movement became identified with crankiness and suffered some set-back from this, though in fact the eccentricities of some of Letchworth's early inhabitants had no bearing on the soundness of Howard's and Unwin's ideas, nor much influence in their execution. Nevertheless, the garden city movement still suffers from something of a hangover of this outlook; there are still people who sneer at the garden city idea as cranky even though they may themselves live in residential units planned according to Howard's teachings, while the exponents of it are inclined to defend it with somewhat unnecessary vehemence.

While not wishing to enter here into any discussion of the perennial flats-versus-houses controversy, one can say that the Letchworth garden city idea has proved of incalculable value to many millions of people in providing them with better living conditions, even if some of the resulting inter-war period housing, municipal as well as speculative, was unimaginative and ill-considered. It is as well to remember that at the time when the garden city idea was promulgated, the only alternative policy for housing workers' families was the 'block dwelling'.[1] British industrial cities might well have become congested colonies of monotonous and ugly block dwellings; they were saved from it by Howard and Unwin. Above all, these two men and their supporters created the study of densities, a study which is the fundamental factor in urban development.

Today the Letchworth idea has become official government policy as expressed in the New Towns Act and is taking shape in the dozen or so new towns now under construction. Basically, Howard's proposals are as sound as when he promulgated them and tried them out at Letchworth; these new towns have their zoned areas—civic, shopping, residential and industrial, as well as their green belts. Ideas on design have inevitably changed and will continue to change; the 'cottage' embowered in greenery has been replaced by the more formal terrace; it is recognised that there are some people who do not want gardens and for whom flats must be provided—a notion which would have been almost blasphemy to the early Letchworth residents; the bus, lorry and private car have straightened and widened the roads; the prefabricated school building has come into the picture. But otherwise the new towns are the true children of Letchworth and have inherited their parent's features and characteristics. Like Letchworth also, they are visited by foreign architects, town-planners and housing experts who are in search of ideas.

[1] See 'New Dwellings from Old: An Example from Liverpool', by Dr. Ronald Bradbury, elsewhere in this issue.



Plan of Letchworth (from *Garden Cities of Tomorrow*, Faber and Faber, 1946)

The Town and Country Planning Association have been celebrating this Jubilee of Letchworth. They have held a meeting and lunch at Letchworth at which were present some of those who attended the rain-soaked inauguration a half-century ago, and they have published a special number of their official organ, TOWN AND COUNTRY PLANNING, to which we are

A view from a back garden in Rushby Walk. Fifty years of gardening and tree growth have given Letchworth a look of long-settled maturity

Howgills, the Meeting House of the Society of Friends. Architects: Bennett and Bidwell. A typical example of design in the English vernacular

indebted for many of the facts here given, as well as for the loan of these photographs and drawings.

The special number is fascinating reading. It opens with an article by that protagonist of garden cities, Mr. F. J. Osborn, in which he surveys Letchworth's first fifty years. He points out that one of Howard's basic ideas, that the outward spread of cities should be restricted, has only recently become generally accepted. He rebuts the view held by some that the garden city movement has been responsible for the inter-war suburban sprawl; it would, he says, have occurred in any case, and would have been much worse without Howard and Unwin, but much better if their ideas on zoning had been adopted earlier.

In other articles, Dr. Macfadyen, a Letchworth resident since 1905, gives illuminating descriptions of some of the founder enthusiasts, and describes the town's growing-pains; Lewis Mumford contributes some views on garden city policy and Carl Feiss writes on the influence of Letchworth in the U.S.A.; Miss Barbara Hill [*A*] discusses the town's architectural influences and it is her drawings which we reproduce here; Mr. C. B. Purdom, the company's first representative to live on the site, describes engagingly the early days; Mr. Charles Lee, also an early resident, contributes extracts from his diary, including a mention of the first aeroplane to fly over Letchworth; Mr. J. D. Ritchie, Secretary and General Manager of the company, discusses the retail shopping, and Mr. Laurence Harwood the factories of Letchworth, which now number 150 and employ over 10,000 persons. There are numerous other small articles and letters, including one on the Howard family by Ebenezer Howard's daughter, Mrs. E. M. Berry. Finally, there are official letters of salute from Ministers of the Crown and ex-Ministers; and, as we go to press, we learn that there is to be an official dinner in the House of Commons—surely a full turn of the wheel from the sneers of Balfour and Lloyd George?

E. L. B.

A corner group, Field Lane and Sollershott. Architects: Barry Parker and Raymond Unwin. A very early example of a deliberately designed corner grouping of houses

Terrace of six cottages in Lytton Avenue. Architect: C. M. Crickmer

Aluminium Windows

By E. I. Brimelow, M.Eng., A.I.M., Assoc.I.Mech.E.

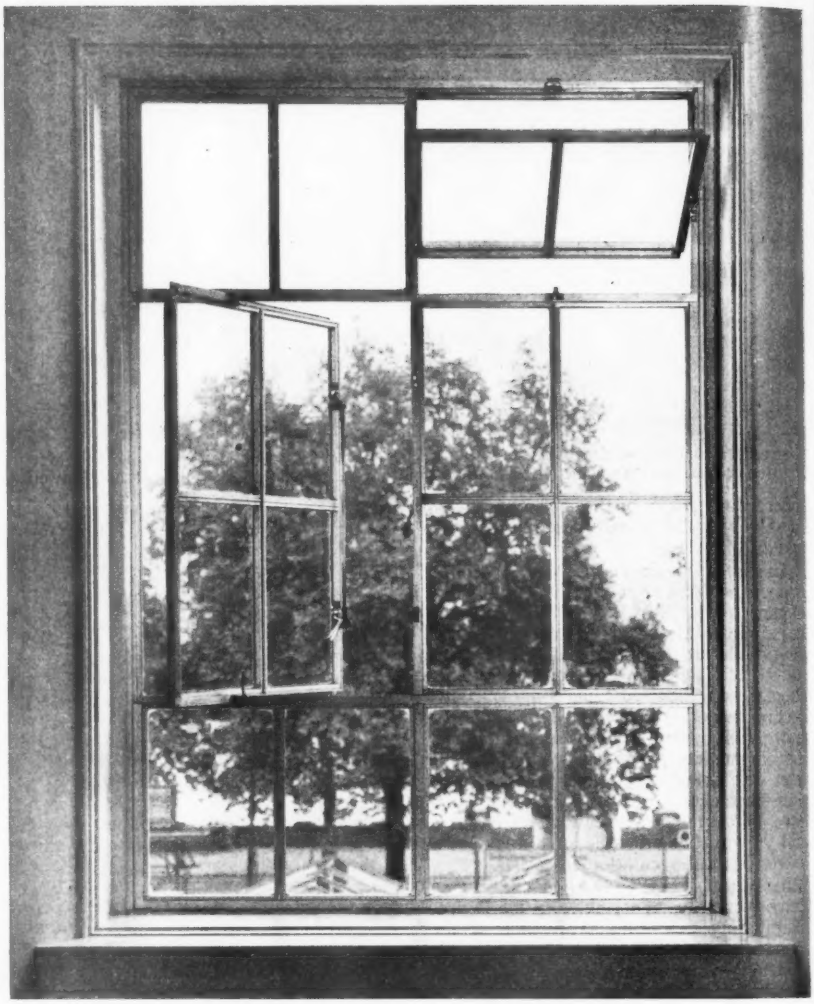
ALUMINIUM WINDOWS have been used in this country for some 25 years, but most of the earlier ones were made for special purposes in comparatively small numbers and it is only in recent years that large-scale production for houses, schools, industrial and office buildings has developed into an important industry. Factory production was adopted much earlier in the United States of America, where aluminium windows have been used extensively. Production in both countries has been facilitated by major developments in the aluminium industry, in which improved techniques for casting, extruding, welding and finishing aluminium alloys have enabled window frames to be produced economically. It is hoped that the following summary of the available information on aluminium windows will serve as a guide to present and potential users of these windows and as a basis for further development work.

MATERIALS AND CONSTRUCTION

Suitable Alloys. When selecting aluminium alloys for use as window frame materials the primary consideration is that they should have the requisite physical and chemical properties to enable them to be made into frames which will be sufficiently strong, rigid and durable for their particular duties. The results of atmospheric exposure tests[1] made over a period of ten years on non-ferrous metals and alloys, and evidence gained from actual service experience of aluminium alloys in buildings,[2] have shown that pure aluminium and certain aluminium alloys are among the most durable of metallic materials, and that they compare favourably with copper, manganese bronze, lead and zinc as regards resistance to corrosion and loss of tensile strength after weathering in many different types of atmosphere, and that they are better than iron or steel in these respects.

As regards durability, all aluminium alloys do not behave alike; alloys containing copper, iron, nickel and zinc have a lower corrosion resistance, although in many cases still better than iron and steel. Besides the effect of chemical compositions the type of heat-treatment and mechanical work given to some alloys may have an appreciable influence on resistance to weathering and to a certain extent these factors influence the choice of aluminium alloys for window frames and necessitate careful selection.

The principal use of aluminium alloys for windows is in the form of extruded sections, and for this purpose the most useful alloy is that complying with British Standard 1476.HE9, which contains about 0·5 per cent of magnesium and of silicon as the major alloying elements, in addition to aluminium.[3] Other wrought alloys possessing good strength and weathering properties, rendering them useful for window fittings or frame sections, are B.S. 1476.HE10 and NE5.

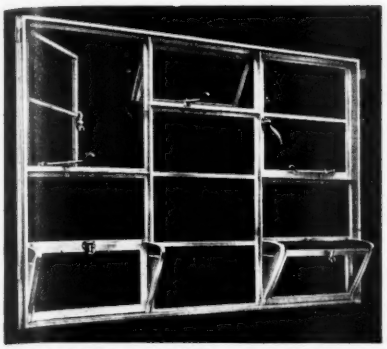


Window in Government offices, Whitehall Gardens. Flash-butt welded in aluminium alloy HE9–W, extruded and anodised

In addition to durability and adequate mechanical strength, aluminium alloys for extruded window frame sections should have good properties for forming extruded solid or hollow sections of intricate shape and for responding satisfactorily to finishing processes such as anodising. If the joints are to be welded the alloy should have good welding characteristics, and the copper-free non-heat-treatable types are easier to weld than the higher strength heat-treatable alloys containing copper as a major alloying element.

These considerations have led to the selection of alloy HE9 as a suitable material for extruded window frame sections for most general purposes. It is a heat-treatable alloy of medium strength and good weathering properties with a copper content not exceeding 0·15 per cent. Its good extrusion and welding properties, combined with its good response to anodic surface treatment, make it an economical alloy for production purposes. HE10 is a similar type of alloy with better tensile strength properties, and it is widely used for glazing bars. Alloy NE5 is a non-heat-treatable alloy with exceptionally good weathering properties under sea-board and marine conditions, but its welding and extrusion properties are not considered to be so good as those of HE9 and fabrication of frames in this alloy is generally more expensive.

Die-cast frames are mainly made in alloys containing 10 to 13 per cent of silicon. The most durable is that designated B.S. 1490 LM–6 and is the alloy most widely used for windows which need not be painted.[4] B.S. 1490 LM–2 and LM–20 are cheaper alloys of this type, but they contain larger amounts of copper, nickel and iron than LM–6 and therefore have not such good resistance to corrosion. A high proportion of remelted and refined



School window in welded extruded sections of HE10–W. Riveted aluminium alloy fittings

aluminium alloy scrap is used in the manufacture of these cheaper alloys, and for this reason they are sometimes referred to as 'secondary' alloys, but if their chemical composition is carefully controlled within the specified limits of B.S. 1490 the fact that they are secondary alloys, and liable to more rapid deterioration in surface appearance than LM–6 when exposed to the weather, should not detract from their usefulness in certain classes of window frames which will be painted.

Construction. Two main types of aluminium windows are in production; those that have frames made by joining extruded sections, and those that are gravity die-cast in permanent moulds as single units. The extruded section type of windows offers most scope to the manufacturer and is the type in greatest production. A large variety of shapes and sizes of solid extruded sections can be made to suit most designs of windows and the use of aluminium alloy sections offers the designer far more scope than rolled steel sections do as these are restricted to simpler profiles. Recently hollow or box sections with very thin walls have been produced by impact extrusion and although limited to smaller sizes and simpler designs, as compared with solid sections, they provide still further scope for designing windows with adequate stiffness and are more economical in metal used.

The construction of window frames from extruded sections may be done in several ways according to the jointing process adopted; that is, by welding, brazing, mechanical joining, the use of synthetic adhesives, or by casting metal into the corners of hollow sections. Welding and brazing are the processes most used in large-scale production.

Considerable progress has been made in developing new welding techniques and it seems probable that flash-butt welding will supersede gas and electric arc welding. Provided suitable alloys are used sound welded joints can be made by the flash-butt process without the use of special welding rods and fluxes and with a minimum loss of strength after welding. Another advantage of this method of jointing is the ability to restrict the fusion and heat-affected zone so that there is no need for reheating to avoid unsightly staining of the welded joint. So far this process has only been used for the welding of solid extruded sections but development work on hollow sections is in progress.

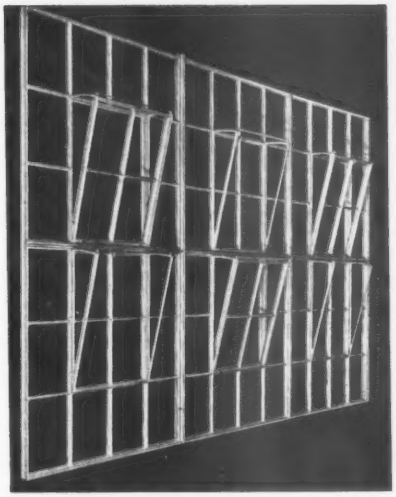
Torch brazing[5] has been used, but it is limited to certain types of alloys. A blowpipe or torch is used as in gas welding and careful cleaning of the joints is an essential part of the process in order to remove all traces of flux residues, as these would promote corrosion. Mechanical joints have sometimes been used but these involve the use of cleats and counter-sunk screws which make it difficult to avoid the formation of crevices where moisture and dust may collect, thus increasing the risk of corrosion and the possibility that the joints will work loose in service.

The use of synthetic resin adhesives provides another method of making joints.[6] These non-metallic building materials provide strong durable joints by the simple process of 'curing' the bond by heating at about 180° C. for 4 minutes under a pressure of 100 to 200 lb. per sq. in. Recently alternative types of adhesives have been developed which do not shrink during curing and so do not require pressure other than that needed to hold the sections together during curing.

The die-casting process has been confined mainly to small frames since casting difficulties and the initial cost of the dies increase with the size of the frame. This method of manufacture is attractive because it allows complete frames to be made with certain fittings cast integrally with the frame sections. In this way a high rate of production can be achieved using cheaper alloys which are unsuitable for extrusion or welding, but in making these castings care is necessary to avoid high residual stresses which may lead to warping of the frames in use. Die-cast frames made of selected secondary alloys are usually pretreated and given a priming coat of paint by the manufacturers.

Fittings. The efficiency and quality of a window, whether it be made of wood, steel, bronze or aluminium, depend very much on its fittings, which need to be carefully designed to function efficiently and they should have a quality of surface finish which tones aesthetically with the window. Fittings are usually made from durable material of sufficient strength, and in their manufacture care must be taken to avoid defects such as casting porosity or forging cracks. It is important to fix the fittings in such a way that neither they nor the frames are weakened, and to achieve this their positions and the number of drilled holes have to be selected carefully in relation to the types of fittings used.

As aluminium windows are much lighter than steel or bronze windows, certa window fittings have been re-designed a made either lighter or heavier accord to the duties they have to perform. Considerable scope for this and for introducing novel types of fittings is afforded by the use of specially-shaped solid or hollow extruded sections which allow fittings to



Double-glazed factory window in welded extruded sections

be accommodated neatly within the sections and by the possibility of casting certain fittings integrally with die-cast frames. The use of concealed spring-loaded sash balances for double-hung windows is an example of developments in this field.

Wrought fittings—that is those made as pressings, stamping or machined from rolled or extruded sections—are as a class generally stronger than die-cast fittings and are usually preferred. By careful attention to design details, die-cast fittings sufficiently strong can be made in certain alloys at a lower cost than wrought fittings. For certain fittings a high impact strength may be more important than a high tensile strength associated with a low ductility.

In general, the metals and alloys normally used for window fittings are suitable for aluminium windows, but direct contact with fittings made in copper or copper alloys such as brass should be avoided. If brass or similar copper-base fittings are used, they should be chromium-plated or insulated from direct contact with the aluminium alloy frame by a suitable jointing compound, impervious fibre washers or a coating of paint.

Fittings such as hinges, handles and peg stays may be made in stainless steel, chromium-plated brass, a wrought aluminium alloy such as complies with N6, H9 or H10 of the British Standard Specifications or a cast aluminium alloy complying with LM–6. Other materials which have been used include manganese brass, galvanised steel and zinc-base die-casting alloys complying with B.S. 1004/A. When aluminium alloy side-hung hinges are used a stainless steel washer is usually interposed at the joint to ensure easy movement. It is essential that moving parts such as bolts, catches, hinge and pivot pins should be resistant to wear and corrosion so as to avoid binding or seizure. Stainless steel pins are to be recommended although chromium-plated brass and sherardised steel have been used.

Domestic double-hung sash with sash balances, stainless steel locking device and weather-stripping. Welded extruded sections

Aluminium alloy fittings may be screwed, riveted, or welded to the section, but welding should be used only where a sound corrosion-resisting weld can be ensured. Materials for screws and rivets have to be carefully selected to ensure adequate strength and corrosion resistance. Stainless steel rivets and screws or aluminium alloy rivets and screws to B.S. 1473–1475 NR6–O and HG10 are recommended for unpainted or anodised windows.[7] Zinc or cadmium-coated steel screws have also been used, but it is difficult to avoid damage to their protective coating during fixing. They would, however, be suitable for painted frames. Fittings cast integrally with die-cast frames are of course more difficult to replace when damaged.

The influence of windows on the aesthetic appearance of buildings has created a demand for specially designed purpose-made windows, and aluminium alloys are useful in this respect as they allow considerable flexibility in the design of sections which can be made by the extrusion process. This enables sections to be produced incorporating special features such as provision for a sub-frame, facilities for fixing metal glazing beads, spring clips, lead flashing and drainage channels. Also there is no difficulty in providing edges of sections with generous radii, which is important in avoiding damage to contacting surfaces and in preventing accidents due to cuts and knocks.

As hollow-extruded aluminium alloy sections combine the properties of low weight with strength and rigidity they enable the width of sections, and the number of glazing bars, to be reduced and thus cause less obstruction to light. Glazing bars and frame sections may be designed with tapering profiles or oblique surfaces to reflect more light into a building.

For certain types of domestic houses, schools, and offices, industrial and agricultural buildings, windows made to an efficient yet simple standard design would be satisfactory, particularly when several of these small units can be assembled to form larger windows giving scope for architectural variation. Standardisation in this way has much to commend it, since it simplifies production, economises material and labour and ensures a greater output of good-quality windows for such purposes.

There has been a tendency to adopt sectional shapes for aluminium window sections similar to those used in steel construction, but it is now recognised that departure from the steel bar profiles is necessary and careful consideration is being given to the shapes and dimensions of both solid and hollow sections to ensure that windows, glazed and complete with fittings, have adequate stiffness and that this is achieved by the most economical use of materials. Values for the moduli of elasticity and rigidity for aluminium alloys are about one-third of those for steel. It is therefore important to give attention to the sectional properties of aluminium window sections, as determined by geometrical shape, in order to provide rigid frames. Hollow sections are useful in this respect because they have a far greater torsional stiffness than solid sections of the same weight.

SURFACE FINISH

Selection of finish. Different views have been expressed concerning the best type of surface finish to be given to aluminium windows. Most of the earlier installations in this country were made from extruded sections in alloys similar to types HE9 or HE10 and given an anodised finish. For post-war building purposes anodised frames have been supplemented by cast frames which, although in most cases inferior as regards resistance to weathering and unsuitable for anodising, were satisfactory after they had been given a protective coat of paint. The selection of a suitable finish will to a large extent be determined by the type of alloy used, the standard of appearance required, and whether or not it will be possible to provide regular maintenance by cleaning or painting. The local atmospheric environment to which the windows will be exposed should also be taken into account. The method of jointing adopted during construction may also affect the finish obtained by certain processes and this should be considered when deciding the best finishing process to apply.

There are a number of suitable finishes for aluminium windows, each having a distinctive architectural effect. These include the natural finish of the extruded or die-cast alloy, which may or may not have been treated by a mechanical process to give a desired effect such as a highly-polished finish; an anodised finish which is applicable to extruded sections, the effect obtained depending on the alloy and the electro-chemical process used; and a painted finish suitable for both die-cast and extruded windows. With all types of finish there will be a deterioration in surface appearance during use at a rate depending on the severity of the atmosphere.

Windows with a natural finish will deteriorate rapidly in a highly-polluted industrial or marine atmosphere. In a clean rural atmosphere a good surface appearance may be retained for several years, especially on surfaces washed by the rain. Weathering will at first cause local breakdown at isolated spots in the protective film of natural oxide which covers all aluminium surfaces. At these spots shallow pittings will occur and white to grey corrosion products will be formed on the surface. Gradually the whole surface becomes roughened and assumes a dull appearance not unlike weathered stone, and although this appearance may be undesirable in certain types of building it may not be entirely unsuitable for others where the weathered surfaces of the windows tone with the external face of the building as a whole. The effect of weathering is mainly superficial and, unlike the serious effects of rusting on steel windows, it does not affect seriously the strength of these components when recommended alloys are used.

Anodised windows will also deteriorate in appearance if exposed to aggressive atmospheres for long periods without cleaning and will become deeply pitted and present an unsightly pockmarked surface. These surfaces are even more difficult to restore than weathered natural finishes. Anodising, however, appreciably increases the resistance to weather-staining and provides a pleasing surface which does not readily retain dust or soot and is easier to keep clean than natural surfaces.

Aluminium windows are generally only painted for decorative effect, but this may be an essential protective finish for certain die-cast frames when secondary alloys with inferior weathering properties are used. With the latter type of windows repainting at regular intervals becomes as important for aluminium windows as for steel windows.

A good natural finish is usually obtained on extruded and cast aluminium sections by using specially designed dies with carefully machined surfaces kept well lubricated during use, and such sections are easily polished mechanically in preparation for any subsequent surface treatment which may be required. When window frames with a high-quality finish are desired, special care during manufacture is necessary to ensure that these surfaces are not damaged during handling and assembly and this is particularly important for windows which are to be anodised, since any surface blemishes such as scratch marks and surface

staining become emphasised during anodic treatment. Useful information on the handling and storing of aluminium alloys is given in Information Bulletin No. 15 of the Aluminium Development Association.

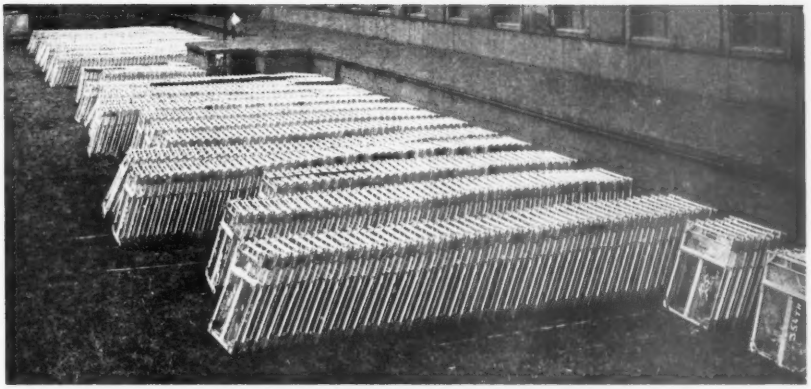
Anodic oxidation. Anodic oxidation, or anodising as it is more generally termed, has had a wide application as a finishing process for good-quality windows made from extruded sections. It is an electrolytic process for thickening the thin oxide film which forms naturally on aluminium alloy surfaces and is responsible for the high degree of corrosion resistance of these materials. Detailed information on the anodic oxidation of aluminium and its alloys is given in Information Bulletin No. 14 of the Aluminium Development Association.

The properties of anodic films and their degree of protection will vary according to the type of anodic treatment applied and the conditions in which the process is operated. Certain alloys have chemical compositions which are not suitable for obtaining a continuous uniformly thick oxide film and should not be used if this type of finish is required. Anodising tends to reveal rather than mask surface irregularities and blemishes such as roughness of surface, porosity, coarse grain structure or segregation of alloying constituents, therefore only good-quality materials must be used if a good finish is required. Welded joints in frames are liable to cause discoloration or staining of the surfaces round the weld zone when anodised, but this can be avoided by proper treatment. In this respect HE9 is one of the best aluminium alloys.

Interesting developments of the anodic finish are processes for colouring anodic films by immersion in solutions of dyestuff or by the use of solutions which precipitate insoluble coloured salts in the pores of the anodic film. Dyeing is done before sealing the film. When the resistance of these coloured films to fading in sunlight is ensured the dyeing of anodised films should offer an attractive alternative to painting for colour-finishing aluminium alloy windows.

Pre-treatment for Painting. When it is desired to paint aluminium windows made from extruded sections, thorough cleaning and careful preparation of the surface is essential to ensure good paint adhesion. Details of various pre-treatment processes are given in Information Bulletin No. 20 of the Aluminium Development Association.

The necessity for careful control of the process conditions when pre-treating aluminium alloy frames, the importance of thorough washing to remove acid or alkaline solution which would damage the paint film, and the need for applying the first or priming coat of paint to a dry surface as soon as possible after pre-treatment are factors which suggest that the surface preparation and application of the primer should be done at the works under carefully-controlled conditions before the windows are delivered to the site.



Die-cast factory glazed windows for prefabricated aluminium bungalows

A promising recent development is that of the vinyl resin self-etching or "wash" primer, which gives good adhesion without any pre-treatment other than the removal of dirt and grease.

The need for pre-treating die-cast frames before painting, except to ensure a clean grease-free surface, is not so definite. In certain cases die-cast frames have been painted successfully without any pre-treatment other than degreasing.

Weathering of frames after installation followed by removal of corrosion products and deposits may provide a fairly satisfactory surface for painting, but the quality of finish and durability of the paint coat would not be so good as that achieved by pre-treatment and priming at the works. Another and serious objection to this practice is that surfaces of the frame which come in direct contact with surrounding building materials, which may be harmful to unprotected aluminium alloy, cannot be painted after installation.

Paint finish. There is no difficulty in painting aluminium windows provided care is taken in preparing the surface to ensure good paint adhesion. Usually paint coatings have a longer life on an aluminium base than on iron or steel. Suitable paints will vary somewhat in composition according to the method of application—brushing, dipping or spraying; the method of drying—air drying or stoving, and the quality of the finish required, such as degree of hardness or durability. When more than one coat of paint is applied it is very important to make sure that they are of suitable composition and provide good inter-coat adhesion. It is usually recommended that the paint for the priming coat should contain zinc chromate, barium chromate or zinc tetroxchromate with other pigments such as red oxide of iron or zinc oxide. Primers containing lead or lead compounds as pigments are generally regarded as unsuitable for use on aluminium alloys, particularly when exposed to marine or industrial atmospheres, but lead paints may be used as finishing coats over a suitable primer.

Both the interior and exterior surfaces of window frames should be painted with exterior quality finishing paint which is impervious to moisture, will withstand exposure to ultra-violet light and retain a certain degree of flexibility under all weather conditions. Colour, appearance and resistance to wear of the paint coat will be determined mainly by the finishing coat; it is therefore important to ensure that in these respects the finishing coat is suitable and that it does not soften or otherwise adversely affect the undercoat or primer.

Clear lacquers are usually less durable than pigmented systems. Transparent stoving lacquers have been developed which, except for a slight tendency to discolour during service, have proved satisfactory for preserving the natural bright surface appearance of polished or anodised extruded sections. This method of protection is especially suitable for die-cast frames where the composition of the alloy precludes anodic treatment.

Paints based on pitches and bitumens which are particularly resistant to moisture penetration and to attack by acid and alkaline solutions are useful for protecting those parts of aluminium frames which come in contact with timber, alkaline building materials and masonry. They suffer from the disadvantage that they tend to 'bleed' and cause unsightly discoloration of surrounding surfaces and, in general, have poor durability when exposed to sunlight and the weather.

INSTALLATIONS

Fixing. Aluminium windows are fixed in much the same way as other metal windows and the same general rules apply.

The frames are usually provided with aluminium alloy fixing lugs or galvanised mild steel anchors when they are to be set directly in brickwork or concrete. Alternatively the frames may be countersunk so that they can be screwed to plugs in stonework or masonry, or directly to timber, galvanised steel or wood sub-frames.

Wall openings should be large enough to take the frame with a gap of about $\frac{1}{8}$ in. all round so that it can be correctly positioned and anchored firmly. Metal or wood sub-frames have the advantage that they determine the size of the window openings

Part of aluminium alloy window, natural finish, after 13 years' service on sea-front at St. Ives, Cornwall

required, and since they are fixed while the building is in the course of erection the windows can be left until the building is almost completed and there is little danger of their being damaged.

It is important that all aluminium alloy lugs, screws and those surfaces of the frames that will be anchored in direct contact with masonry, timber or steel surrounds should be protected with a thick coating of either bituminous paint or an inhibited water-resistant jointing compound containing barium chromate, to avoid direct chemical attack from alkaline or acid solutions formed by moisture and the surrounding materials. Steel anchors, screws or other fittings should be similarly painted or protected by a metallic coating such as zinc obtained by hot-dip galvanising, sherardising, electro-deposition or by metal spraying. Copper-base fittings and screws should not be used for fixing unless they are chromium plated or suitably insulated by paint or jointing compound, because of the possibility of galvanic corrosion between copper and aluminium.

Glazing and weatherproofing. Aluminium windows may be glazed in the normal way, using a suitable putty or special glazing compound. The alternative method is to use aluminium, aluminium alloy or hardwood glazing beads. It is important to note that the linseed oil/whiting type of glazier's putty normally used with wooden frames is unsuitable for use with aluminium alloy frames or any type of metal frame. Considerable progress, however, has been made in developing suitable putties and the British Standards Institution is revising B.S. 544 *Putty for Glazing* so as to include suitable putties, type 2, for aluminium and other metal windows.

Several proprietary mastic and bituminous type glazing and pointing compounds are also available. They have good bedding properties, satisfactory adhesion and good resistance to cracking under all weather conditions over long periods of service. They may be applied in strip form or kneaded, and in many cases glazing is just as easy as with ordinary putty. They also have the additional advantage of being easier to apply in very cold weather and of remaining pliable during their service life so that stripping for reglazing is made easy. They have good resistance to wrinkling, cracking and shrinkage and need not be painted unless desired. Certain types may be supplied in a range of colours.

When glazing beads are used they may be in the form of extruded aluminium or aluminium alloy sections, shaped to fit neatly into the frame and fixed by screws or studs to the frames and glazing rebates. Or they may be the screwless type which have a spring-in or self-locking type of fit into special grooves provided in the frame section, and before the glazing beads are fixed the glass must be bedded in a suitable material. Lead glazing strips or flashings have also been used with aluminium glazing beads, but it is essential that the flashing should be carefully pressed down to form a watertight joint between the lead and aluminium to prevent electrolytic corrosion.

Under severe weather conditions the air-tightness of windows becomes an important factor; as far as possible the surfaces of opening lights should make close contact with the fixed frames when locked in the closed position, and contact clearances should be reduced to a minimum. The amount of play in hinges and fittings, as well as the rigidity and sectional shapes of the frames, will affect the dimension of any air gap formed; the thickness of a coating of paint may also affect the air-tightness. Weather-stripping has been used to ensure air-tightness and is usually incorporated in special guides provided at the contacting surfaces of the sections.

Cleaning and maintenance. From surveys made of existing aluminium window installations it is evident that while they will have a long structural life even under the most severe atmospheric conditions, regular cleaning is necessary to maintain the good surface appearance of anodised and unanodised frames. Dirt, soot, and rainwater contaminated with sulphuric acid which is formed in an industrial atmosphere will all cause superficial corrosion and a gradual deterioration in surface appearance if allowed to linger for long periods on the window frames.

Regular washing down of external surfaces with clean water, or with a warm soap solution followed by rinsing with clean water, will keep the aluminium alloy surface clean and prevent deterioration. It may be necessary to use mild alkaline cleaners and even steel wool well lubricated with soap solution to remove firmly-adherent deposits, but great care is necessary to prevent scratching and damage to the anodic film. Severe abrasives and strong alkaline or acid cleaners which would damage the anodic film and attack the underlying aluminium should be avoided. Periodic waxing of the cleaned surface with a good-quality liquid wax would give additional protection. Interior frame surfaces will normally need much less attention, and an occasional cleaning and waxing should ensure a good appearance throughout the life of the windows. Where interior conditions are more severe because of condensation or fumes, regular cleaning as for the outside surfaces will be necessary.

How frequently windows need to be cleaned will vary according to the conditions of service. In severe industrial districts it may be necessary to clean about every three months, or washing down could be done regularly when the windows are cleaned. Certain proprietary glass window-cleaning solutions which are strongly acid or alkaline in nature may be harmful to aluminium frames and it would be advisable to ascertain their suitability before use. Where in certain types of buildings, such as farm and industrial, the maintenance of a good appearance may not warrant regular cleaning, anodised windows are not recommended, and it is suggested that a natural finish would be satisfactory, provided the windows are made in an aluminium alloy of good durability. In this type of window superficial corrosion products do not cause unsightly staining of surrounding masonry.

Painted windows need to be painted at regular intervals in order to maintain a good appearance, since complete breakdown of the paint coat gives a surface effect more unsightly than that of naturally weathered unpainted windows. Repainting presents no difficulty provided a paint is used which is compatible with the old paint. If, however, all the old paint has to be removed it should be done with a stripper or paint remover of the organic solvent type. A blow lamp should not be used because there is danger of local overheating of the aluminium, and on account of its low melting-point compared with steel this may cause distortion and softening of the metal. Caustic alkaline removers are unsuitable since they would have a direct chemical attack on the basis metal. When it is not necessary to remove the old paint completely the surface should be washed down with water and brushed with a stiff bristle brush to remove loose paint and deposits.

Survey of window installations

In 1946 a survey was made of some aluminium window installations which had been exposed to various types of atmospheric conditions for periods up to 13 years. The windows were made from extruded sections in aluminium alloys HE9 or HE10, gas welded and anodised by the sulphuric or chromic acid process. The effects of weathering had produced a deterioration in surface appearance, varying with the amount of cleaning given and the type of district in which they were exposed. It may be concluded from this survey that an anodic coating alone will not prevent surface deterioration in urban atmospheres, and may even accentuate localised corrosion attack and surface roughening in regions where the protective film fails due to uneven exposure of the underlying metal

Part of anodised window after 12 years' exposure in sheltered position, without maintenance

surface. Some of the installations had deteriorated rapidly during the war years when maintenance was neglected. In some cases the use of window boards as a protection against bomb blast, and in particular contact with damp sand bags, had resulted in appreciable surface damage to the sections due to corrosion.

An examination of windows at St. Ives, Cornwall, exposed for 13 years to sea spray and mists, confirmed that while aluminium alloy frames may deteriorate appreciably in appearance as a result of weathering under such severe conditions the actual corrosion is mainly superficial and does not seriously impair the strength properties of the frames. In this particular case lead flashing had been used for glazing and an examination of one of the frames showed that it had given satisfactory service except in one place where the flashing had not been pressed down firmly to form a tight seal after glazing. In the crevice formed between the lead and the aluminium alloy severe corrosion had occurred due to ingress of sea-water spray.

It is interesting to note that most of the gas-welded joints were sound and had weathered uniformly in colour with the rest of the frame. In a few isolated cases cracks were found at the welds, thus emphasising the need for a good welding technique to ensure freedom from high residual stresses and a reasonable homogeneity of the weld and parent metal.

Bronze or brass internal fittings which had been insulated from direct contact with the sections by impregnated tape had given satisfactory service and there was no evidence of harmful effects from galvanic action. When used under normal conditions stainless steel hinge pins in either base or aluminium alloy hinges were satisfactory, but seizure of the pins had occurred in the aluminium alloy hinges of a library building which had been neglected while permanently boarded-up during the war. Probably regular oiling or greasing would have prevented this trouble.

An important observation made during the survey was that even where aluminium windows had been neglected they compared favourably with the state of steel windows and iron work used in the same buildings which had also been neglected and were generally badly rusted.

Comparative costs

Comparing in 1948 the overall costs for domestic types of standard windows over a period of 21 years, including estimated maintenance costs for painting, there was little difference between the galvanised steel, ungalvanised steel and die-cast aluminium alloy windows, and the latter were slightly cheaper than similar wooden windows. Extruded unanodised windows, which for durability required no maintenance apart from regular washing when they were cleaned, had the lowest overall cost, being cheaper than wood, steel and die-cast aluminium alloy windows. Anodised extruded windows were the most costly, although saving in maintenance costs over a period of years appreciably reduced the difference between these and the other types of windows.

Since 1948 there has been an upward trend in the cost of windows due to increases in the price of materials and labour costs. As a rough estimate galvanised steel windows have increased about 20%, aluminium windows made from extruded sections and left in natural polished state about 25%, and wooden windows about 30%. The indications, therefore, are that when maintenance costs are taken into consideration certain types of domestic aluminium windows are competitive in overall costs with traditional types.

CONCLUSIONS

It may be concluded that certain types of aluminium alloys are suitable materials for window frame construction. As regards durability they may be expected to have a life comparable with steel and wood windows which have been carefully maintained and a much longer life in comparison with these windows if their maintenance has been neglected, while from the structural and design point of view aluminium alloys which may be cast or extruded into sections of intricate shape offer advantages over other materials.

Already considerable progress has been made in overcoming difficulties associated with the economical use of aluminium alloy sections and in developing suitable jointing processes to enable strong, rigid, factory-made frames to be mass-produced at a price competitive with other types of windows; but certain difficulties, such as the development of improved processes for joining hollow sections and the design of suitable sections for large windows to give adequate rigidity with economical use of materials, have still to be overcome in this country before further progress can be made in the production of these components. The price and availability of aluminium alloys in comparison with other materials will also have an important bearing on the extent to which these alloys will be used for window frames in the future.

Aluminium windows have been used successfully to achieve distinctive architectural effects in administrative, institutional and similar types of buildings. Bearing in mind the importance of reducing as much as possible the maintenance costs of these buildings it is considered that the better class of window will continue to be made from extruded sections in durable alloys of medium strength such as HE9 and to rely upon anodising followed by regular cleaning to maintain a good surface appearance.

Part of anodised window not sheltered from rain

For industrial, agricultural, domestic and similar types of buildings, where the quality of finish and appearance need not be of such a high standard, it is considered that aluminium windows with a natural finish would be suitable. If desired these windows may be painted for decorative purposes, but provided the recommended alloys are used painting is not essential for good durability.

It has become evident in recent years that aluminium is suitable for both purpose-made or special windows and for standard types such as are used in housing, schools, hospitals and industrial buildings. For many windows in the last category, where sizes and dimensions can conveniently be standardised, a British Standard would serve a useful purpose, since by specifying suitable alloys, types of surface finish and ranges of section shapes or sectional properties economic production and a satisfactory standard of window design would be ensured.

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New Dwellings from Old: an Example from Liverpool

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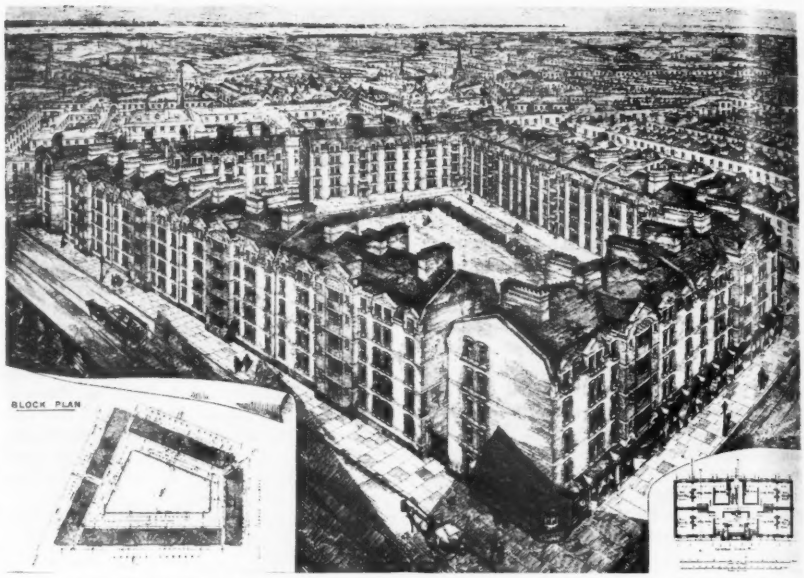


Artisans' dwellings, Victoria Square, Liverpool. Designed by C. Dunscombe, M.A., M.I.C.E. From THE BUILDER, June 1886

INCREASING ATTENTION has been given recently to the problem of the 'quality deficiency' in the country's existing stock of houses and flats, and to the need for devoting some of the resources of the housing drive to the rehabilitation of older properties where these can be brought up to an acceptable standard by repair and improvement. Various bodies have undertaken pilot schemes of rehabilitation and conversion encouraged by the availability of the Improvement Grants under the 1949 Housing Act. These grants were included for the purpose of assisting both private owners and local authorities to rehabilitate and modernise older dwellings which, though outmoded, are structurally sound and capable of conversion into a number of separate flats. It is becoming more apparent to everyone that the modernisation and conversion of suitable existing dwellings would effect a considerable reinforcement of the housing drive and that where it can be shown that such improvements can be made to obsolete dwellings without wasting good money on bad properties it is a line of attack well worth pursuing. Some of these pilot schemes have been the subject of special publications, whilst others have been fully described in the technical press. It may be of interest to outline briefly the technique of modernisation which the City of Liverpool is at present applying to certain of its older municipal housing projects.

Liverpool was one of the earliest authorities to enter the field of municipal housing, and, in 1864, in advance of general housing legislation, obtained special parliamentary powers to build 'Artisans' and Labourers' Dwellings'. Between the completion of the first block of flats in 1869 and the outbreak of the First World War some 25 different housing schemes were built in the central areas of Liverpool, totalling in all 2,895 dwellings. Liverpool is thus perhaps unique in that its housing activities have, as it were, completed a full cycle, for, notwithstanding proper maintenance and repair, many of the properties which were built in the last century are now outmoded and obsolete, despite the fact that, when they were built, they were regarded as the 'last word' in design and equipment. Most of these early schemes, however, were very well and solidly built, and although the buildings lack bathrooms and larders and in some cases are lit by gas and have communal W.C.'s, their fabric still has a very long useful life. The Housing Committee and the City Council have, of course, been increasingly conscious in recent years of the need to modernise such properties and improve living conditions for their tenants, and considered many possible methods of dealing with their obsolescence. It was not, however, until the 1949 Act with its Improvement Grant facilities was passed that the proposition to modernise such dwellings really became a practical possibility. Immediately the Act was passed, steps were taken to deal with the two oldest properties, and works of renovation and adaptation are now proceeding on both schemes.

St. Martin's Cottages, completed in 1869 under the powers contained in Liverpool's special Act of 1864, is one of the oldest municipal schemes in the country. Peculiarly enough, although the scheme is called St. Martin's Cottages, it does in fact consist of 88 flats in four blocks, each four storeys high, fronting on to two parallel roads with 36 flats in two intermediate blocks, three storeys high, lying between the former. Presumably, it was felt desirable in this municipal project to avoid the use of the word 'flat' in its title, possibly because that term carried with it even more opprobrium than it does today. St. Martin's Cottages are particularly well built, and are still structurally sound.

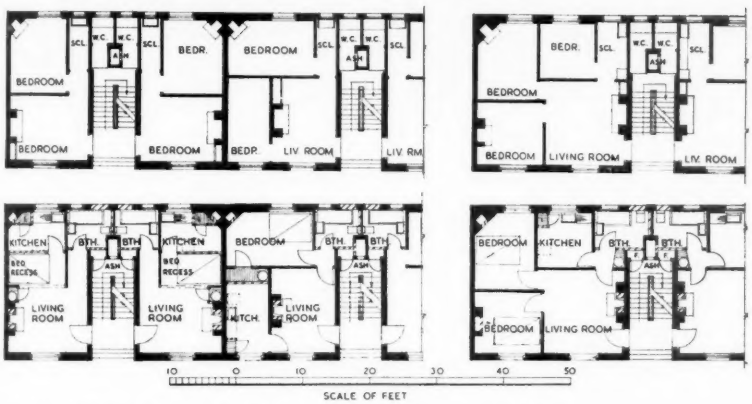
The individual flats are of one, two and three bedrooms, with small living-room and scullery, and with W.C.'s on the half-landings of the staircases, in full view from the street. On the landing, immediately below the W.C., the entrance door to the flat opens directly on to the living-room. The dwellings are without larders or fuel stores, and are very sub-standard from the point of planning. Cooking is done over an open fire and the flats are lit by gas. One very undesirable feature is that the ash-chute is situated on the half-landing in the interior of the building, immediately outside the entrance to the W.C.'s and is thus without ventilation. Each block of flats has a sub-basement, which was originally used as living accommodation, but which was sealed up many years ago. The sizes and numbers of the flats are as follows:

	Sq. ft.	*No.*
One bedroom	265	72
Two bedroom	345	36
Three bedroom	488	16
Total		124

Although it is clear from this description that the facilities and amenities of the flats in no way conform to modern standards, and thus render the dwellings of a type which in normal times one would wish to demolish, the fact that their structural walls and floors are still sound and in a reasonable state of repair and the roof watertight made their modernisation in present circumstances a worth-while proposition. By careful replanning and at reasonable expense they can be and are being made into useful housing units.

The way in which these blocks are laid out on the site was an additional complication. The blocks run parallel to each other in three lines, as already described, but unfortunately the distance between the back of the outer block and the face of the inner block is only 25 ft., with the result that the middle blocks and the backs of the outer blocks are inadequately lit and their ventilation is poor. Once, therefore, it was decided to embark upon a modernisation scheme, it was clear that the two middle blocks would have to be demolished if the remainder were to be brought up to the required standards, even though this would

St. Martin's Cottages; erected 1869. Two of the four-storey blocks



St. Martin's Cottages. Original plan above; plan as converted below

mean the loss of 36 flats. It was further decided that the modernisation of the four outer blocks should be completed before the two internal blocks were demolished.

The modernisation works which have now been effected in one block, and which are shown on the plan on this page, can be briefly described.

In each flat, one bedroom becomes a kitchen, with sink, drainer, and a power and gas point, to enable the tenant to install either an electric cooker or a gas cooker, at his choice. A properly ventilated larder has been built in one corner of the kitchen. Each flat has a bathroom and W.C., the provision of which has been made possible by the removal of a partition wall and the lowering of the floor level of the existing W.C. (previously on the half-landing) to the level of the existing scullery, thus forming a ventilated ante-space between bathroom, kitchen and living-room. The hot-water cylinder is fixed here. The old ranges and fireplaces have been removed and modern tiled surrounds and hearths, with back boiler and modern draught-controlled fire bottoms, have been installed, the back boiler heating the new domestic plumbing system. Each flat has been wired for electricity. The entrances to the original W.C.'s on the half-landing are now the separate fuel stores for each flat. Patent impervious floor finishes have been laid in the sculleries, bathrooms and ante-spaces. The existing ash-chute has been retained on economy grounds.

The overall average cost of the conversion is £350 per flat. This includes, of course, the entire redecoration of the premises, and now that they are finished the individual flats bear little resemblance in either amenity or character to the original dwellings, with the result that whilst the original flats were difficult to let, the modernised dwellings are extremely popular amongst those applicants who for one reason or another must continue to live in the central areas. Although, therefore, many people had their doubts as to the advisability of proceeding with the scheme, the great majority now feel that it has been a very well worth-while venture.

Concurrently with the modernisation of St. Martin's Cottages, work has proceeded on a similar scheme of adaptation at Victoria Square. This scheme, which is illustrated by an old perspective drawing (page 452), was completed in 1885. At that time, Victoria Square was justly regarded as an extremely exciting pioneer venture in municipal housing. Indeed, when the drawings for the scheme were exhibited at the International Health Exhibition in 1887, Mr. Dunscombe, the City Engineer who designed the project, was awarded a Gold Medal and the Corporation a Diploma of Honour.

Up to the late 1920's Victoria Square was regarded as a very desirable place in which to live, but some time before 1939 it had come to be regarded as old-fashioned and outmoded. In 1941 Victoria Square sustained very considerable damage from bombing, and this resulted in the total number of dwellings in the original scheme, namely 270, being reduced to 215. The accommodation of the remaining three and a half blocks is shown in Table I.

Unlike St. Martin's Cottages, it was clear when modernisation proposals were explored that it would be unnecessary to demolish any further blocks, since there was plenty of light and air to each of the remaining flats. The modernisation proposals were therefore confined entirely to work within the four walls.

All the flats in Victoria Square have communal sanitary facilities and communal sculleries. The communal W.C.'s are entered from a common passage on each floor, which is next to the room originally described on the plans as a communal laundry but which for many years has been abandoned as constituting a nuisance to health, since it was often used by persons

Table I

Block No.	*Bed/Sit. Room*	*1 B/Rm.*	*2 B/Rm.*	*4 B/Rm.*	*Total*
1	7	48	32	–	87
2	7	30	20	5	62
3	4	24	16	–	44
½	2	12	8	–	22
Total	20	114	76	5	215

when the W.C.'s were occupied. The ash-chutes were formed within the W.C./laundry wall, the hopper on each storey being a 9 in. by 3½ in. casting with the lid set flush with the floor so that the area around it was splashed and dirtied by refuse. Whilst by modern planning standards the layout of the flats is reasonably satisfactory, the fact that none of them has separate sanitary facilities or baths renders them unacceptable as modern dwellings, particularly as they do not have any separate fuel stores or larders, and the cooking in most cases has to be carried out over an open fire. Moreover, the premises are lit throughout by gas, and the finishes of the internal stairways and corridors are dark and unsatisfactory. But they are certainly well built. The walls, of 14 in. brickwork, and the roofs are sound.

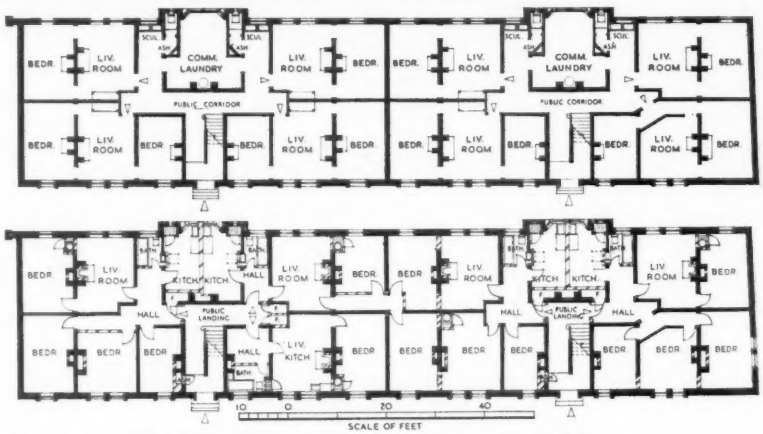
The scheme of modernisation eventually accepted provides for the alteration and reconditioning of the flats in such a way as to reduce the number from 215 to 120, but, as will be seen from a comparison of the schedules of accommodation before and after alteration, the number of bedrooms will be increased from 306 to 335. Thus, after conversion, Victoria Square will provide slightly more sleeping accommodation than before the alteration, and of course of a character much more comparable with that provided in new blocks of flats. The first block now under conversion originally comprised 44 dwellings, with two flats on either side of the public staircase serving the ground, first, second and third floors, and two bed-sitting-room flats on the fourth floor. This total has now been reduced to 25 flats, each with an increased area of living space.

The communal laundries, W.C.'s, sculleries and access passages have now been adapted to provide a separate kitchen to each flat, with a ventilated larder. Each flat has a bathroom, W.C., separate fuel store and entrance hall.

The ash-chutes are now on external walls and vented into adjacent disused smoke flues. An entirely new domestic plumbing system has been installed with back boilers in modern air-controlled fireplaces with tiled surrounds. All the flats have been wired for electricity, and the public staircases are also lit with electric light. Power points are provided for electric fires, immersion water-heater and radio. The old bedroom fireplaces have been removed and the openings bricked up; unnecessary communicating doors have been similarly treated.

The flats and staircases have been redecorated throughout in warm tones, and particular care has been taken in the alterations not to change the character of the elevations in any way.

Victoria Square dwellings; erected 1885. War damage on right



Victoria Square dwellings. Original plan above; plan as converted below

The average cost of conversions per flat is £544. The accommodation provided after conversion of the whole of the scheme will be as shown in Table II.

One of the difficulties in carrying out modernisation proposals in old properties on the lines outlined in this article is that of persuading families who have lived in them for many years to remove, so that work can proceed. Despite the fact that the buildings are old and obsolete, many of the older folk are reluctant to leave the homes in which they have lived for so many years. Modernisation schemes of this kind thus have to be carried out in easy stages, staircase by staircase, as each is cleared of tenants, so that the complete modernisation proposals will take quite a considerable time to carry through to finality.

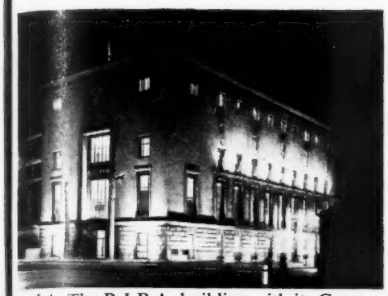
Whilst no claim is made to have created by these conversions 'silk purses out of sows' ears', nevertheless it has been a great source of surprise to all concerned how well the alterations have turned out and what comfortable and up-to-date dwellings have resulted.

Table II

Block	*Bedrooms* *Four*	*Three*	*Two*	*One*	*Total*
A	20	5	5	5	35
B	10	5	5	5	25
C	10	–	–	–	10
D	15	15	10	10	50
Total	55	25	20	20	120

A.B.S. Christmas Cards

On sale from 13 November



Card A. The R.I.B.A. building with its Coronation floodlighting. From a photograph by Sydney Newbery, F.R.P.S., which was reproduced on the cover of the June JOURNAL. Price 6d.

Card B. A three-colour reproduction of Hanslip Fletcher's drawing of the interior of St. Paul's Cathedral which appears in the Wren Memorial Volume. Price 9d.

Card C. A black-and-white drawing of the church of S. Maria della Salute at Venice by Mr. Cecil Burns [*F*]. Price 6d.

THE ILLUSTRATIONS are small reproductions of the photographs and drawings on the Christmas cards which are being specially prepared for sale to benefit the funds of the Architects' Benevolent Society. They will be on sale at the forthcoming Building Exhibition on the A.B.S. stand which has been kindly presented by Mrs. M. A. Montgomery. Cards can also be ordered by post or purchased at the offices of the Society, though they will not be available until 13 November.

Card A, the R.I.B.A. building with its Coronation floodlighting, is in response to several requests. Card B is a three-colour reproduction of Hanslip Fletcher's drawing of the interior of St. Paul's Cathedral which appears in the Wren Memorial Volume. Card C is from a line drawing by Mr. Cecil Burns [*F*]. Card D is a two-colour reproduction of a lithograph by Mr. Julian Leathart [*F*] from a drawing by Miss Juliette Leathart. Card E is a three-colour drawing by Miss Patience Forman. Card G, also by Miss Forman, is in blue-and-white; this last card has been provided in response to several requests last year for a card suitable for children; both her designs have been kindly presented by Miss Forman, who is a professional artist.

Card F has been specially drawn for the A.B.S. by Mr. Godfrey Crockett [*A*] in response to requests for a 'light-hearted' card suitable for the building industry.

Cards A, C, F and G will be 6*d*. each and Cards B, D and E will be 9*d*. each (envelopes included) in any quantity. Orders should be sent, accompanied by a cheque or postal order, to the Secretary, the Architects' Benevolent Society, 66 Portland Place, W.1. There is no charge for postage in the British Isles, but overseas purchasers are asked to add 10 per cent to the value of their order to cover postage.

In addition, if required, the Society will have cards printed with the name and address of the purchaser, provided orders for these are received not later than 1 December. Overseas purchasers who give special orders of this kind should advance their ordering date by the time which parcel post from Great Britain normally takes to reach them. The A.B.S. cannot send packets of cards by air mail unless purchasers are prepared to pay the cost of this. The cards will have on the third page the words 'Greetings and Good Wishes', beneath which there will be space for a written or printed name and address. The cost of printing a name and address is £1 10*s*. for the first hundred and £1 for each additional hundred or part of a hundred. Printing of names and addresses cannot be undertaken for less than fifty cards of the same kind. The printing of names and addresses will be in the same colour and type as the words 'Greetings and Good Wishes'.

To avoid too great a last minute rush in the A.B.S. office and at the printers, intending purchasers are asked to send in their orders *as early as possible*. Points to remember: state the index letters of the designs you select and the numbers required; send cash with order; names and addresses that are to be specially printed to be typewritten or in block letters; orders for special printing not later than 1 December, but preferably earlier; you can buy any

[*continued on p.* 456

Card D. Reproduction of a lithograph in red and white on a grey background by Mr. Julian Leathart [*F*], from a drawing by Miss Juliette Leathart. Price 9d.

Card E. A drawing in three colours, olive-green, pinky-red and black, by Miss P. A. Forman. Price 9d.

Card F. A black-and-white drawing by Mr. Godfrey Crockett [*A*]. This was specially drawn by Mr. Crockett in response to requests that the A.B.S. should produce a card of light-hearted character, suitable for sale to members of the building industry at the Building Exhibition. Price 6d.

Card G. A blue-and-white drawing by Miss P. A. Forman, specially intended for children. Price 6d.

number of cards from one upwards, but if your name and address are to be printed the order must be not less than fifty.

During the last two years the funds of the A.B.S. have benefited considerably from the sale of these special Christmas cards. All architects are asked to purchase some if not all their cards from the A.B.S. and thus to help their own charity.

Practice Notes

Edited by Charles Woodward [*A*]

BUILDING BYELAWS. The Minister of Housing and Local Government has made an Order under section 68 of the Public Health Act, 1936, that 'the period during which any building byelaws of the local authorities named in the schedule hereto are to remain in force shall, for the purpose of continuing in force any such byelaws which would, by virtue of section 68 of the Public Health Act, 1936, cease to have effect before the 31st day of December, 1953, be extended until that date or until they are revoked by new building byelaws, whichever date is the earlier'. (The Building Byelaws (Extension of Operation) Order, 1953, S.I. 1953, No. 936, price 6*d*. at H.M. Stationery Office.) The schedule referred to contains the names of the County Boroughs, Boroughs, Urban Districts and Rural Districts to which the Order applies. As the names total about 1,130, they cannot be printed here and the Order should be referred to for that information.

Section 68 of the Public Health Act, 1936, provides 'that any building byelaw made by a local authority under this Part of this Act shall cease to have effect on the expiration of ten years from the date on which it was made'. The Minister has power under this Section to extend the period during which such byelaw is to remain in force.

MINISTRY OF HOUSING AND LOCAL GOVERNMENT. Water mains and service pipes on housing estates. Circular 46/53, dated 31 July, states that the ban on cast iron pipes for dual water mains is removed and Circular 85/50 is withdrawn. Local authorities and water undertakers are reminded that where houses are in one ownership costs can be reduced by laying common service pipes to either dual or single mains.

Local Government (Miscellaneous Provisions) Act, 1953. Circular 47/53, dated 11 August, calls the attention of local authorities to this Act which came into operation on 14 August 1953.

The Act makes provision for the calculation of charges under the New Streets Act, 1951, section 9. Some local Acts require that before a building is erected fronting upon a new street, works for the construction and sewering of the street must be carried out in accordance with the byelaws. In such a case the amount to be paid or secured under the New Street Act, 1951, is to be estimated as if those works had been carried out.

Sections 10 and 11 of the new Act amend section 12 of the Housing Act, 1936, in respect of closing orders and demolition orders.

Model Building Byelaws. Circular 49/53, dated 14 August, refers to a new impression of model building byelaws which is substantially a reprint of the 1952 edition. The 1952 edition included six byelaws which have, in practice, proved to be seldom used, i.e. those relating to elevation of sites and the factory chimney clauses. These clauses have now been removed to an appendix, thus eliminating the need to renumber clauses with consequential cross references.

The Model Byelaws, Series IV, Buildings (1953 Edition), are obtainable at H.M. Stationery Office, price 2*s*. 3*d*. net.

PLANNING PERMISSIONS UNDER THE 1947 ACT. It is now two years since the Ministry of Local Government and Planning issued a Memorandum on the Drafting of Planning Permissions for the guidance of local planning authorities, and it may not be out of place to refer to the Minister's views as expressed in the document.

An important point is that 'planning powers ought not to be used as a sort of universal longstop when other powers are not available' and 'conditions which have no relevance to planning have no place in a planning permission'. This may possibly refer to a planning permission which contains a condition which ought to be dealt with under the Public Health Act and Byelaws. An applicant's right of appeal may in such a case be duplicated, as the Minister having allowed an appeal against the condition, an appeal would then be made to the appropriate tribunal under the Public Health Act. As costs in a successful appeal to the Minister do not follow the event, the applicant is put to an expense which would have been avoided had the local planning authority followed the Minister's guidance.

It is not necessary, when granting permission for the erection of a building, to specify the use to which it is to be put, as the permission will be construed as including permission to use the building for the purpose for which it is designed. If there is any doubt the permission should be specific. If the applicant desires it, permission may be granted in a form which allows free interchange between uses in two or more classes. Section 18 (3) of the Act can be referred to in this connection.

Outline applications are sometimes made in order to ascertain the kind of development that would be permitted. As 'use' as defined in the Act excludes development by building, a permission to 'use land' would not authorise the erection of buildings. In view of section 14 (4) of the Act and the Board of Trade certificate for industrial buildings, the authority should decide whether to treat the application as an informal enquiry or have it amended by the applicant so that it relates only to the erection of buildings for which no certificate is required. This is a point which would, no doubt, be in the mind of the applicant's professional adviser. A permission on an outline application should provide specifically for any matters to be reserved for subsequent approval, as an unqualified permission to erect a building would almost always have to be construed as including permission for any other development which was essential to its use. The matters reserved for subsequent approval would, no doubt, relate solely to planning conditions for which power is given under the Act.

The paragraph in the Memorandum dealing with the conditions to be attached to a permission recommends that they should be reduced to a minimum. To attempt to guard against every possible contingency and regulate every trifle is a sign of over-anxious administration and may defeat its own ends. Automatic attachment of conditions should be avoided since conditions so imposed may be either superfluous or inappropriate in many cases, and this remark applies to standard conditions in particular. Conditions to be satisfactory must be capable of enforcement and should therefore be clear and precise. Vague expressions should be avoided and section 23 (2) of the Act defines the extent to which enforcement can be carried.

Section 14 (1) of the Act enables the planning authority to grant permission 'subject to such conditions as they think fit', but it would appear that these words do not give an unlimited discretion. It has been judicially decided that the words 'as they think fit' do not mean 'as they choose' but 'as they think fitting'. (Roberts *v.* Hopwood (1925) A.C. 578, p. 613.) The conditions must be planning conditions.

Time limits in a permission are not encouraged in the Memorandum unless there is special reason to believe that the planning proposals for an area will need substantial revision. A condition that the development shall be commenced by a given date may result in the developer being deprived of compensation for abortive expenditure under section 21 of the Act. This might occur where the condition was not complied with and a fresh application was refused.

The Memorandum should be borne in mind by both applicant and planning authority, the result of which might be to reduce appeals to the Minister. A study of the Bulletins of Selected Appeal Decisions would also give a guide to the Minister's views in particular cases and to the principles upon which his decisions are based. The JOURNAL OF PLANNING LAW for August refers to a planning appeal where the planning authority had attached a condition to the consent 'that the land within the front boundary wall and the improvement line shown on plan No. 174/1/M, attached to outline application R/21/51 being reserved for road widening purposes'. In allowing the appeal and discharging the condition the Minister said that the condition was imposed by the Council so that the ultimate widening of the highway should not be prejudiced. The appellants contended that the condition was invalid in that it was irregular and unreasonable and ought not to have been imposed. The Minister added that he thought he ought to make it clear now that in his view the requirement of the condition under appeal had no relevance to the development authorised by the permission.

LAW CASES

Bewlay and Co. Ltd. *v.* **London County Council.** On 29 July the Divisional Court of the Queen's Bench Division heard an appeal by Messrs. Bewlay from a decision of the Magistrate confirming a dangerous structure notice served on them by the L.C.C. in respect of premises in Holborn. The notice was served under the provisions of the London Building Acts (Amendment) Act, 1939. Part 7.

The premises consisted of a shop and living accommodation on the upper floors occupied by statutory tenants. The dangerous structure notice required Messrs. Bewlay to take down, repair or otherwise secure such parts of the premises as were fractured or insecure. The premises were then shored up and endeavours were made to get the statutory tenants to vacate the premises but without success.

Messrs. Bewlay were then summoned before the Magistrate, who made an order directing them to take down, repair or otherwise secure, and it was from this order that Messrs. Bewlay appealed to the Divisional Court.

In stating the case for the opinion of the Court the Magistrate found that Messrs. Bewlay had had reasonable time and had failed to comply with the notice as speedily as the Act required, and expressed the opinion that the premises were not such as economically would warrant the expenditure required to put them into a safe condition and reasonable state of repair, and felt compelled to hold that he had no alternative but to make the order, i.e. to take down, repair or otherwise secure, and that he had no discretion in the matter.

The Lord Chief Justice, giving the judgment of the Court, said that he thought the Magistrate was wrong in deciding he had no discretion. He had discretion to order the owners to take down, or to order them to repair or to otherwise secure. As a matter of English it was clear from the Act that he could order any one of those directions. The case must go back to him with an intimation that he was wrong and that it was open to him to make an order to take down the premises. The appeal was accordingly allowed. (THE ESTATES GAZETTE, 8 August 1953.)

(*Note*.—It will be seen that the case arose because it was not possible to get vacant possession of the premises as the tenants were statutory tenants. Had vacant possession been obtained the owners would, no doubt, have proceeded to take down the premises, this being the economical method of complying with the dangerous structure notice.

If a district surveyor certifies that the structure is in a state dangerous to its inmates, a magistrate can, on the application of the L.C.C., direct that the inmates be removed. If, in the case quoted above, the magistrate makes an order to take down the premises, he can also order the premises to be vacated if satisfied that there is danger to the inmates, and the L.C.C. make the application for their removal.)

On 12 August the case again came before the Magistrate but he declined to alter the decision he had made when the case was originally before him, i.e. to take down, repair or otherwise secure the structure. (THE ESTATES GAZETTE, 22 August 1953.)

It would appear now that the owners must put the premises into a safe condition involving an unreasonable expense, as the Magistrate would not order the premises to be taken down, which the Divisional Court said he had power to do.

Debney *v.* **Enoch & Co. (General Merchants) Ltd.** In the Queen's Bench Division on 6 July the plaintiff, a chartered surveyor, claimed fees for professional services in connection with war damage repairs and other repairs to the defendants' premises.

In giving judgment for the plaintiff, his Lordship said that when a surveyor was employed to do such work, it was unreasonable to say that his ultimate remuneration must depend on whether defendants got a licence, and unless the specification was altogether outrageous or disproportionate to the work, the surveyor had done his job. There was no such disproportion in this case, and the plaintiff was not bound to base his calculation for his remuneration on the amount of the licence obtained, but was entitled to base it on the amount of the specification. (THE ESTATES GAZETTE, 29 August 1953.)

Book Reviews

Goths and Vandals, *&c.*, by *Martin S. Briggs*. 8½ in. viii + 251 pp. + pls. and pp. of illus. Constable. 1952. £1 10*s*.

If you go to the extreme south-west corner of Wales you will find that St. David's Cathedral has a west front put up by Sir Gilbert Scott in hard purple stone. You can discover, too, from a very early photograph, that this replaces an older front by Nash—a work of notable character and some charm which included two immense flying buttresses jutting west and anchoring this façade to the nave both more effectively and more dramatically than its successor. You find this replacement regrettable and you angrily call it a vandalism.

That is the kind of thing which Mr. Briggs discusses in this most interesting and probably unique 'study of the destruction, neglect and preservation of historical buildings in England' from the Middle Ages to the present day. He is a splendid historian—Sir Harold Nicholson has said as much—but I do not think he is really interested in architecture itself, the useful and beautiful thing. He gives us wonderfully condensed chapters on the atrocities of Thomas Cromwell, on Inigo Jones and William Laud, and a long one on 'Wren and his times'; but I consider the most pertinent part of the book is that which deals with the Victorian period. Mr. Briggs is admirable on Sir Gilbert Scott and applauds many of his excellent works—an attitude which will find support in the original drawings of that architect recently acquired by the R.I.B.A. But he is less admirable when he maintains that the work done by Scott at St. Albans Cathedral appears to great advantage in contrast with 'the uncontrolled vandalism' of Lord Grimthorpe. He is almost virulent in his stricture of that nobleman who spent £140,000 of his own money restoring the building. One feels that this vehemence is due more to the peer's unprofessional practices than to a thoroughly considered appreciation of his work. Mr. Briggs then asserts that Lord Grimthorpe's west front 'looks like nothing on earth'—an unfortunate remark in a book so packed with erudition and especially about a composition which some of us, analysing it dispassionately, might consider much more like what a west front should be than many of the mediaeval attempts to solve that most difficult problem in design.

A. S. G. BUTLER [*F*]

The R.I.B.A. Standard Form of Building Contract. An Annotation and Guide, by *Derek Walker-Smith* and *Howard A. Close*, with *Michael Chavasse* and *F. O. Jayne*. 9½ in. xvi + 215 pp. Charles Knight. 1953. £1 17*s*. 6*d*.

This Annotation is concerned primarily with the Standard Form for use by Local Authorities, but it deals also with the Form for private use together with the Forms where Quantities do not form part of the Contract.

When four gentlemen learned in the law

expound a document, it is not surprising that some of their conclusions are at variance with the preconceived notions of the lay mind. Our legislators are frequently surprised when Her Majesty's Judges give the legal construction of an Act of Parliament which is not at all what was intended by the said legislators. Hence an amending Act! One such construction occurs in this Annotation in connection with the No Quantities Form. On page 143 it is said that the Schedule of Rates referred to in Clause 2 of the Conditions is not a contract document. What then is it? Can either party to the Contract refuse to be bound by the Schedule for the purpose of Clause 9? Having said that it is not a contract document, it would have been helpful if the authors had indicated the use to which the Schedule is to be put. Is an amendment needed?

The method of annotating clause by clause makes for easy reading and the references to case law are interesting. The Court's interpretation of Clause 18 that the architect's extension of time can be made retrospectively caused some surprise, but that judgment made it clear that the contractor's remedy is to give notice of arbitration in order to preserve his rights and it should not be assumed that time is at large. The annotations on this clause are very clear and are well worth study. The Court pointed out that the clause does not require an extension of time to be in writing, and no doubt this omission will be rectified in a future edition of the Contract.

'Completion' under the Contract may cause confusion in the event of dispute, as the wording may give different dates for 'completion'. There is 'practical completion' for the purpose of the Defects Liability Period and the release of half the retention money. There is 'completion' when the employer takes over the premises. There is a 'date for completion' calculated from the 'date for possession'. Thus the date for 'practical completion' will determine the Defects Liability Period but not necessarily the date when the employer takes over the premises, nor the date for the purpose of extensions of time and possible liquidated damages. The architect would, no doubt, make it quite clear in his administration of the Contract which are the relevant dates for these different purposes. He should remember that the arbitrator may be a brother professional to whom he would not wish any harm.

In any revision of the Form it would be an advantage to include Clause 18A in Clause 20. At present only Clause 18 is referred to, though presumably Clause 18A is intended to be one of the causes of delay for which the contractor may determine his employment.

The Standard Form of Contract is well understood in the building industry, though disputes do arise. In some cases it is the fault of the employer in not giving sufficient time for the preparation of the contract documents and in making alterations after the building work has commenced. In other cases it may be that the information supplied to the contractor for the purpose of tendering is not as complete as it ought to be. And the facts of a particular case may give rise to a legal interpretation of the contract which discloses a genuine difference of opinion. It is this latter reason which makes the Annotation of value and it can be commended to those responsible for the Form of Contract. From time to time amendments are made to the Form, and in the next revision interpretations to which the Annotation calls attention could be considered and any doubt removed. The Form is very widely used and it says much for the building industry that those disputes which do arise are often settled without recourse to arbitration. In such references, however, it is not what the parties meant to say but what they have said, and though the arbitration clause gives large powers these should not be extended to deciding issues otherwise than strictly in accordance with the Contract. C. W.

The Heart of the City, *&c.*, edited by *J. Tyrwhitt, J. L. Sert* and *E. N. Rogers.* (Congrès Internationaux d'Architecture Moderne.) 10½ in. × 8½ in. xii + 185 pp. incl. pls. text illus. Lund Humphries. 1952. £2 10*s*.

The eighth International Congress for Modern Architecture was held in Hoddesdon, Herts., in 1951. The theme was urban centres. The book resulting from the Congress is in three parts. First, there is a series of papers by leading members and reports of discussions. Secondly, there are twenty *projets* illustrated by drawings, photographs and coloured plans. These range from students' exercises to schemes which will be executed, it is hoped at least in part, in different countries of the world. Thirdly there is an impression of the Congress itself. The *projets* are presented in a brief but systematic way, conforming with the CIAM grid prepared by Le Corbusier and the French Group, Ascoral. The grid is described in the appendix.

The book vividly conveys the atmosphere of the conference, with emotion and feeling at times predominant. In the early days of CIAM the flashing, intuitive brilliance of Le Corbusier was balanced by the steady illumination of a hard thinking German group which was at grips with the housing problem, and making a practical contribution within the tight confines of a difficult social and economic programme. With the coming of Nazism the German members were scattered far and wide and the importance of their contribution, especially in its influence on official architecture, is now generally overlooked. There is little evidence in this country that contemporary architects are, for example, aware of the work of the pre-Nazi city architect's office in Frankfurt which carried on from the point where Sir Raymond Unwin left off as, indeed, did Stein and Wright in the U.S.A. Most still struggle to leave Unwin behind and have, so far, failed to match his forty years old Hampstead Garden Suburb.

Unwin thought about the social and economic as well as the architectural problems of his time. We generally talk inconclusively and at length about social matters and are induced to disregard economics by curiously arranged public finance. The great strength of the modern movement should lie in the ability of its architects to combine rationalism and humanism; in their power to think equally well about the large and the small scale problems; and in the successful provision of architecture for the masses rather than for the few. The carrying out of the school building programme of recent years has, in some places, given an indication of the truly contemporary approach.

One of the present weaknesses of CIAM is the apparent inability of some of the participants to come down to earth. They continue to hurl verbal brickbats at the 'academies', which have undergone greater changes than the founder members ever hoped would be possible. It is a joy to read the sweet and simple words of Gropius the humanist, who has devoted the greater part of his life to academic work. He again defines 'the three main disciplines to be integrated in architectural design, namely the sciences of space, of construction, and of economy'. It is a sobering experience to read another leader of the modern movement using a different language: 'We have revolutionary means at hand to plan these new Cores. The movies, the loudspeakers, the television screens have come to the public squares, cafés, and places of gatherings. Everything could easily work towards the popularisation of these new means of communication, and this popularisation would have immeasurable consequences if it were put to the service of popular education.' It is reassuring to turn once more to Gropius. He compares the landscapes of England and America and, in spite of the difference, finds the Core 'is within the realm of the family, not within the public place. Obviously, the Anglo-American habit is to use the private home as a forum or *agora*.'

The two points of view were in juxtaposition throughout the Congress. This makes for fascinating reading in the book, but it also explains why the Core, as subject, was ill defined and the subsequent discussions were generally inconclusive. The Latins were full of fire, excitement, and the desire to rush into the new *piazzas*. The Anglo-Saxons approached the subject with philosophical caution best exemplified by Maxwell Fry's delightful essay, and the practical down to earthiness of Holford and Ling, both living with plans which will have constantly to be adjusted as the ten thousands, described by Fry, change their attitudes.

From the beginning CIAM has been a vital force in the development and stimulation of architectural ideas. Always Le Corbusier has been the central figure and never more so than now. Late in life he has the opportunity that he was unable to take earlier when the Soviet Union was almost ready to offer it. With associates he is designing a capital city in India which is rapidly being built. The town plan of the capital, Chandigarh, illustrated in the book, is a modification of the earlier plan prepared

by Albert Mayer and the late Matthew Nowicki, whose death in an air accident on a journey from India was a tragic loss to architecture. The essentials of the earlier plan have been retained, with the 'Radburn idea' and the classification of routes fundamental. Through a strange combination of circumstances an extraordinary event is occurring. Two streams of ideas, which in the world of words were supposedly poles apart, are meeting in India. The first has flowed from Howard via Unwin in England, and others including Stein, Wright and now Neutra (an early member of the CIAM) in the U.S.A. The second found its source in the younger Le Corbusier and he, as one must expect from a great artist, has charted and changed its course throughout his professional life.

This meeting of the streams is of some significance to the future of CIAM. We are on the threshold of a new architectural period and every country is striving to direct the growth of its cities into new and better patterns. The majority of contemporary architects who are responsible for a growing proportion of the world's building do not participate in CIAM, yet they have been strongly influenced by the ideas of some of the leaders, particularly Le Corbusier and Gropius, as well as by national tradition and circumstances. If the leaders do no more we may rightly say they have done nobly.

The dangers to CIAM and the much wider modern movement lie in a premature hardening of the arteries along which ideas and ideals must continue to flow. Disciples, and conformists to this, that or the other particular school of thought, are out of place if the general advance is to continue. The rediscovery of the true tradition in architecture is within reach after a long period in which imitation in place of tradition has been foisted on student architects and ordinary men and women. The great artists and scholars, for example Le Corbusier and our own Lethaby, have reminded us that tradition is a living thing and that if it is not allowed to develop it dies. The problems of today grow from those of yesterday, but the solutions must come in succession and vary according to place and time. It is no contribution to architecture slavishly to imitate Le Corbusier. There are now far too many who don the mantle of a disciple to cover their ignorance. They fail to see the essence of his art and assume they are doing a service to architecture by repeating thoughtlessly his polemical arguments of yesterday.

There are unmistakable signs that CIAM could develop into a new 'academy'. What an irony of fate that would be. The formulae to replace those of the *Ecole des Beaux Arts* appear with greater frequency. The defence mechanism of the exclusive society builds up. One of the results is that architects who were co-authors of *projets* illustrated in the book but not members of a CIAM group are not mentioned by name. Another is that although many historical examples are shown there is only one passing reference to the fact that some very large and very modern shopping centres have recently been built in the U.S.A. Shopping centres are the liveliest cores of today: the modern market places. It is a great pity one or two of the best were not shown. They illustrate in concrete form many of the constantly recurring points made by the contributors. They are pedestrian precincts on the scale of the *Piazza San Marco*. The automobile, the modern conveyance, is kept in its channels as effectively as the gondola is in those of Venice.

GORDON STEPHENSON [*F*]

Our World From the Air, by *E. A. Gutkind.* 11¾ in. (246) pp. text illus. London: Chatto and Windus. 1952. £3 3*s.*

This is perhaps the most stimulating picture book ever published. Microphotography and this macrophotography share the ability to create a new world, outside everyday visual experience; but the patterns revealed to the airborne observer have the additional interest of being mostly man-made. And it is subtler than this, because they are unconscious patterns, woven by people intent on other functional or aesthetic objectives. They thus have the same intriguing mixture of deliberation and spontaneity as the spider's web, the wormcasts in the sand or the bird's looped flight across the air. Even this is a simplification because men, unlike animals, have long since used the Plan as a tool, generally in the sure knowledge that it was only a convenient intellectual notation and little imagining that it could ever have value in itself. Now it is as if the letters of the alphabet, anthropomorphised as in *Reading Without Tears*, came to life and walked about.

Carried away by these and similar reflections, the author has gone to town with a commentary in which every pretentious Geddesian and Mumfordian cliché has its place. 'The Synoptic view of immense areas has become a reality; and with it our great chance, our inescapable obligation, to adapt our ways of thinking and behaviour to a new inspiration. . . . Radiating and absorbing waves, aerials are the great "uniters" of the world. They make nonsense of the old scale of values to which we are used and of which we cannot easily rid ourselves.'

Granted that one can make nonsense of almost anything by quotation out of context, I think these sentiments are fair examples of a fallacy which pervades the book—that scientific power is an aid to wisdom. As Joad once said, 'it is not by knowing more that men and women will be saved, but by becoming virtuous'.

Few of the hundreds of photographs in the book are beautiful in themselves, but many are curious and some are dramatic. The abstract patterns created by paddy fields, contour ploughing, waterlogged tundra, salt pans, oil derricks, native villages, marshalling yards, desert cities, highway cloverleaves, etc., are wonderfully exploited. The pairing of individual examples is always suggestive: there are almost identical examples of cliff dwellings in Colorado and French West Africa, of thatched villages in Spain and Zululand, of lake dwellings in Borneo and the Caribbean, of fortified farms in Denmark and Israel, of countryside in Warwickshire and Normandy, of fortress towns in Holland and Iran, even of ribbon-development in Japan and England.

The English examples are curiously disappointing. It is strange to find no picture of the greatest English contribution to landscape—the 'improved' parkland of Brown and Repton—no really good English village, and as exemplar of 'the drawing-board method of town-planning' (as if there were any other) a dim council housing scheme at Whitehaven.

But these are parochial criticisms of a book which is masterly in design and unforgettable in content.

LIONEL BRETT [*A*]

The Life of Sir Edwin Lutyens, by *Christopher Hussey.* Special ed. [separately]. 9¾ in. xxii + 602 pp. incl. pls. + front text illus. London: Country Life; New York: Scribners. 1953. £2 2*s.*

Christopher Hussey's masterly biography first appeared in 1950 as one of the four Memorial volumes, the other three (by A. S. G. Butler) being devoted entirely to Sir Edwin's architectural work. It has now been reissued separately with an added preface which records some interesting facts not available three years ago.

Hertfordshire; Derbyshire; County Durham: all by *Nikolaus Pevsner.* (The Buildings of England *series*, 7–9.) Each 7¼ in. Harmondsworth: Penguin Books. 1953. 4*s.* 6*d.*

Earlier volumes have already been reviewed (the last in the March issue, pp. 198–9) and these new volumes need only passing notices. In *Hertfordshire*, already covered by the Monuments Commission, it is interesting to see, e.g., the south transept balusters of St. Albans regarded as an early Norman survival rather than Saxon, but, on the contrary, St. Michael's Church in that town as 'tenth century' and later, in spite of Baldwin Brown's exclusion of it from his revised (1925) Saxon list. Leonard Stokes's superb All Saints Convent at London Colney and Voysey's Chorleywood house are curiously called 'late Victorian', not 'early modern' as one would expect. *Derbyshire* breaks almost entirely fresh ground and reveals unexpected treasures, including some early industrial buildings. In *County Durham*, apart from the obvious Durham city, it is good to see detailed views of the very ancient churches at Jarrow, Monkwearmouth and Escomb, and of less familiar buildings right up to a representative pit-head bath and industrial-estate factory.

Generally, the practice of adding dates to captions (as in the Commission's volumes) is a useful one that might be more widely adopted. The anomalies in the glossary already pointed out are not yet removed. The racy style and occasional slangy colloquialisms (e.g. 'built at one go') make the books more entertaining reading than might appear.

H. V. M. R.

Building Science, &c., by *Alfred G. Geeson*. Vol. II. Materials. 8½ in. viii + 397 pp. text illus. English Univs. Press. 1952. £1 5*s*.

Volume I was divided into three main sections: materials, structures and equipment, and was largely confined to fundamentals. Volume II deals individually and in detail with materials both traditional and new. Volume III, which at the time of writing has not been published, will be concerned with structures, and with the strength properties of structural materials which are not treated in Volume II. As an architect and experienced teacher, the author is particularly well qualified to explain the intricacies of building science to architectural students.

Principles and Practice of Town and Country Planning, by *Lewis Keeble*. 8½ in. xvi + 594 pp. + 56 folding plans. text illus. Estates Gazette. 1952. £2 7*s*. 6*d*.

For sheer down-to-earth land planning, the principles set out in this book will be hard to beat. It is a mammoth work—full of meat—written in an almost puckish style. Easy to read and assimilate, it is a most useful book for students as well as for those diversified types of planner, the committeeman and the layman.

The contents are divided into three main parts. The first, Planning Machinery, is a short and lucid exposition of the powers of planning authorities, planning systems and ministerial functions. At the end of the section is a chapter on the Planner's Skills (*sic*). The second, Planning Technique, is the largest and most comprehensive section, and includes the presentation of maps, all forms of survey and all kinds of plans—except national plans—and programmes; these are very competently handled. The third, Planning Administration, sets out all manner of planning controls. The control of the appearance of buildings is always likely to disturb the composure and digestion of many architects in private practice. The author rightly asserts that architects resent forms of architectural control and, though this has been disputed by some reviewers of the book, many architects who have suffered under an almost tyrannical control of design will heartily agree. Surely the solution is not in the hands of panels, committees or even Royal Commissions, but in the choice of, or the insistence upon, the employment of a good architect. The puerile efforts of many planning authorities, in their often well-intended control of architectural design, are too well known to emphasise here. But to the non-architect planner the mission of control is rigidly fixed in his often insensitive mind.

Unfortunately, the production of this book falls below the quality of the text. Poor presentation, poor paper, printing and format do not do it justice. The illustrations, with one or two exceptions, are good examples of rather bold draughtsmanship and could with advantage in some cases have been more sympathetically drawn. All libraries, both public and private, should acquire this book. It may easily become a standard textbook on present day planning practice in Britain.

C. HOLLIDAY [*F*]

The Ideal Architect

By Cecil Stewart, A.M.T.P.I. [*F*]

I HAVE NEVER really believed that fact is stranger than fiction; nor would I wish it to be. The facts of fiction, as they appear in our advertisements, are quite strange enough for me. They are, in fact, stranger when they purport to represent the facts of—so to speak—life. What a mad, exciting world is displayed in the advertisements of today! We are transformed in an instant from mild and timid creatures, slaves to routine, into wild and healthy giants, jumping five-barred gates or driving chariots across a primaeval world with a pale and beautiful Diana at our side.

As an architect, I am naturally especially interested in the transformation of the architect of fact into the architect of fiction. There are, it is true, almost as many kinds of architect in advertisement fiction as there are in reality, but the architects of fiction have all something in common: they all carry T-squares, or rolls of drawings—the symbols of their profession—without which the reader might be confused.

There is the really great man, the urbane gentleman in the pin-stripe, who interviews his clients within a panelled room of the best style and period. If he is not the President of the R.I.B.A., he is at least a member of Council, and when he declares to his clients, perched uneasily upon the edge of a leather settee, that he would advise 'Scrubbo' for all internal finishes, we know that we cannot go far wrong.

At the other end of the scale is the bubble-blower, who is to be seen in a variety of situations. You will find him at the drawing-board, ballooning that 'only Crumpet & Blowitt could undertake this job' (and judging by the peculiar hieroglyphs on the drawing, he is probably quite right). You can see him again climbing scaffolding, foolishly encumbered by his roll of drawings and T-square, panting to the clerk of works that all doors must be fitted with 'Gripkwick' locks. It does not seem to have occurred to him that he ought to have mentioned this in the specification, and so have saved the clerk of works an unnecessary journey.

In contrast to the keen and generally immaculately-dressed English architect, there is the frightening American progressive. He works in a vast drawing office, his shirt-sleeves hitched up by arm-bands, wearing an eye-shade to protect him from the glare of blue-prints. There is nothing slipshod about his drawing. It has a curious squared pattern all over it, and he has just inscribed on the blue-print: 'Smacco for all floor tiles'; while a gorgeous damsel, perched on a stool beside him, exudes a bubble which proclaims: 'Smacco is cheaper and better.'

The architecture which is produced by these architects of fiction is seldom inspiring. More often than not it is unfinished, and there is no indication of what it may look like in the end. When it *is* finished, it is generally very nasty indeed. And then even the architect with his blue-print seems ashamed to come forward. One sees him lurking in the background of a dreadful Jerrybethan house. In the foreground is a man who stares proudly at this monstrosity, while his son gazes incredulously at him. The son's bubble exclaims: 'A home of our own!' while from the head of the father a series of sparks radiate and are inscribed: '(Thinks)—Thanks to the Improvident Building Society!'

The advertisement I love the best takes the form of a strip cartoon. Here we see a young man hard at work on a competition, burning the midnight oil. Obviously he is not making much progress; the hand which ought to be producing a masterpiece is supporting an aching head. His girl friend is very worried about it all. She cannot understand why he is always so tired and lethargic nowadays. Things are very bad. It looks as though he is going to be sacked from his office, too, unless he does something about himself. The girl friend is desperate, until she has a heart-to-heart talk with the doctor. Then the story moves quickly. The competition drawings for a cathedral in a very pointed Gothic style are completed in a trice, and of course our hero wins. Curiously enough, he doesn't seem to want the job, because in the next cartoon it appears that his employers have decided that they expect the contract themselves, and the most he gets out of it is a junior partnership. But of course he also gets his girl friend, who lets out a lot of sparks. *Caption:* 'Thanks to Sleep-tite!'

The advertisement fan, however, can never be satisfied with such a simple answer. There are so many questions which he would like to ask the young man. Was his success entirely due to 'Sleep-tite', or did he, perhaps, know that that bland gentleman, the President of the Royal Institute of British Architects (or at least a member of Council), was the assessor, and therefore very prudently indicated that he intended to use 'Scrubbo' for all internal finishes? Or did he, perhaps, know that all doors would be opened to him if he used 'Gripkwick' locks? On the other hand, one shudders to think what the result of the competition might have been if his American colleague had entered for it, with his obviously great efficiency and his extensive use of 'Smacco' floor tiling.

But I dare say he would have failed, because he probably hadn't heard of 'Snappi' pencils—an all-British product—which 'are certain winners'.

Review of Construction and Materials

This section gives technical and general information. The following bodies deal with specialised branches of research and will willingly answer inquiries.

The Director, The Building Research Station, Garston, near Watford, Herts.
Telephone: Garston 2246.

The Officer-in-charge, The Building Research Station Scottish Laboratory, Thorntonhall, near Glasgow.
Telephone: Busby 1171.

The Director, The Forest Products Research Laboratory, Princes Risborough, Bucks.
Telephone: Princes Risborough 101.

The Director, The British Standards Institution, 2 Park Street, London, W.1.
Telephone: Mayfair 9000.

The Director, The Building Centre, 26 Store Street, Tottenham Court Road, London, W.C.1.
Telephone: Museum 5400 (10 lines).

The Director, The Scottish Building Centre, 425–7 Sauchiehall Street, Glasgow, C.2.
Telephone: Douglas 0372.

The Stockton Test. Under this title Allied Ironfounders Ltd. have published a booklet describing the experiment carried out by them in acquiring and improving four terrace houses in Alliance Street, Stockton-on-Tees, which were typical of many thousands of houses erected in industrial towns during the latter half of last century and the beginning of this one; houses that were quite well built and are still structurally sound but fall below modern standards in other respects, since they are not ' provided with an efficient and adequate means of supplying hot water for domestic purposes' and do not have 'a fixed bath, preferably in a separate room'; two amenities which should be possessed by a satisfactory house, according to the report of the Standards of Fitness for Habitation Sub-Committee of the Ministry of Health Central Housing Advisory Committee.

The four houses dealt with by Allied Ironfounders had a parlour and kitchen-living-room on the ground floor and two bedrooms over; a scullery led out of the kitchen-living-room and approached from the back yard were a w.c. and compartments for fuel and ashes. Water for the portable bath had to be heated in kettles. The improvements made by Allied Ironfounders included pulling down the outbuildings off the yard and building a new brick structure housing an enlarged scullery, a bathroom and w.c., all approached from the house. In place of the old range in the kitchen-living-room a modern combination grate with back boiler was installed. The work was done during March and April of this year.

In carrying out the improvements Allied Ironfounders took advantage of provisions in the Housing Act 1949 which allow an owner to apply for an improvement grant, and if approved half the cost of the work is borne by the local authority; further, the owner is allowed to increase the rent by an amount equal to 6 per cent of his half of the cost of improvements. The total cost of the experiment at Stockton averaged £350 per house, so the owners will be entitled to raise the rent by about 4*s.* per week, bringing the total rent to some 13*s.* 6*d.* per week.

From the tenant's point of view the increase in rent should be partly off-set by the saving in fuel costs offered by a modern solid fuel appliance, compared with the former uneconomical method of heating water in small quantities on a gas stove. From the owner's point of view the investment is perhaps a doubtful one, as his 6 per cent additional rental must go towards income tax, ordinary repairs, and recoupment of capital. On the face of it this is not a very attractive proposition, and it is stated that in the whole of the country only about 3,000 improvement grants have been applied for, and only 15 in Stockton itself, where nearly 7,000 houses are without baths.

Allied Ironfounders hope that their Stockton experiment may 'draw attention to the problem as a whole, and to the need for encouraging such renovations in the interests of the nation, the local authority, the tenant, and of the property owner himself'.

It may seem strange but there are many families who are attached to the houses and the district in which they, and probably their forebears, have lived all their lives, and who would be quite content to go on living in them, if only they could be given amenities up to a minimum reasonable standard. Even if council houses were available for every such family it might well be that the rent of 22*s.* or 23*s.* a week for a council house could not be afforded, whereas 13*s.* or 14*s.* a week in an improved old house might be willingly paid by a tenant who had no particular wish to move.

This experiment lends additional point to Dr. Bradbury's article on p. 452 of this issue.

Fuel conservation. The British Productivity Council have issued their report on fuel conservation, following a visit paid in 1952 to the United States under the auspices of the Anglo-American Council on Productivity. Since its compilation the suggestion that a permanent and non-political Fuel and Power Board be created has resulted in the decision to set up in the United Kingdom a Fuel Efficiency Organisation, to be initiated by the British Productivity Council.

The report stresses in the strongest terms the urgent need for the better utilisation of all types of fuel, but principally of coal, which 'is the basis of industrial life in Britain and for all practical purposes is the country's only indigenous source of energy'. From all the hard-won coal we consume some 80 per cent of the heat is lost, due in great part to ineffective utilisation. The report states that it has been estimated that the fuel consumption of manufacturing industry in the United Kingdom might well be reduced by something like 30 per cent; that in many inefficiently operated Lancashire boilers 10 tons of excess air pass through every hour, the heat being uselessly discharged up the stack; that on the basis of 120,000 Lancashire boilers in the kingdom the consumption of industrial steam-raising fuel might be reduced by as much as 10 million tons of coal a year. This 10 tons of free air approximates the displacement of the London Tube railway from Piccadilly Circus to Hyde Park Corner.

The importance of thermal insulation as a help to conservation of fuel is stressed, and the report estimates that at least 5 million tons of coal a year could be saved by the application of thermal insulation in the three fields of steam engineering, high-temperature installations and in buildings, and the report recommends that thermal insulation of all new buildings requiring heat should become compulsory and that consideration should be given to the provision of financial incentives for the insulation of existing buildings.

The report refers to vexed questions which, in the short term, await solution; for instance, is it in the national interest that electricity, a costly and refined product, should be used for space heating, except where gas is not available? Is it not essential, in view of industry's future needs for power, that the functions of electricity be confined to the provision of power, light and certain specified heat processes? Is not gas the right fuel to retain on tap for space-heating purposes (occasional heating)?

Another recommendation is that the production of steam in individual works and factories should be abandoned wherever possible in favour of joint services supplying steam and power from back-pressure central stations, that is, dual-purpose generating stations located in industrial areas.

'The shortage of coal has naturally focused attention on secondary sources of energy such as water and wind power, the extraction of methane from coal mines and sewage sludge, underground gasification of coal, tidal power and, above all, atomic energy. All these real or potential sources of energy do not alter our present dependence on coal. This fundamental fact must be thoroughly realised.'

The report may be obtained from the British Productivity Council, 21 Tothill Street, London, S.W.1, price 5*s.* post free (excluding airmail).

The Attic Exhaust Fan. In the matter of ventilation and heating we in Britain are mainly concerned with keeping our houses, and therefore ourselves, warm and we do

not have to bother unduly about keeping cool during the summer. In Australia the conditions are sufficiently different to warrant the Commonwealth Experimental Building Station carrying out tests with an exhaust fan placed in the attic, to find out if the house could be made cooler at night by this means.

The tests were carried out in a ¼-scale model of a house and a full-size house, both being adapted to have thermal performance approximating to that of a brick-built house with 11 in. cavity walls, as brick and other heavyweight constructions are much used in Australia and they have a slow natural cooling rate, which is unfavourable in summer. The model house was used as the control and was ventilated by natural means, the attic fan being installed in the house. The windows in each case were arranged in two ways during the tests; with the bottom sashes partly opened and fully opened. The fan was switched on at 5.30 p.m. and off at 4.30 a.m.

It was found that the fan was effective as a means of cooling the air in the house at night when the wind conditions outdoors ranged from 'calm' to 'light breeze'. The rate of fall of the temperature of the indoor air, under conditions of natural ventilation, was about 50 per cent of the rate of fall outdoors, but with the fan in operation the indoor rate of fall was about 85 per cent of the outdoor fall.

The temperatures of partition surfaces were reduced by the fan, but at a slower rate and to a lesser extent than the air temperature. The minimum rate of air movement necessary to give worthwhile relief from discomfort was considered to be about 300 feet per minute, and this was obtained near the centres of rooms by drawing all the air to the fan through individual rooms or groups of small rooms. At least 300 changes per hour of the air volume of these rooms were necessary to ensure an air speed of 300 feet per minute.

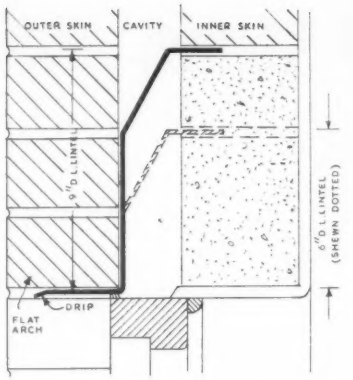
The full report on the experiment is contained in the Commonwealth E.B.S. Special Report No. 9.

Bronze and the Weathering of Marble. Under the United States Department of Commerce the National Bureau of Standards have issued their Building Materials and Structures Report 137, which describes an investigation made to determine whether rainwater flowing over bronze work and then over marble in monuments or other structures causes deterioration of the marble.

The method of test was to place phosphor bronze boxes, containing bronze chippings, over strips of marble; the boxes were open at top and bottom and thus rain percolated through the bronze chippings and flowed over the marble. Control specimens were exposed to the same weathering conditions but were not in contact with bronze.

It was noted that green and brown stains developed on the marble test strips and that the brown areas deteriorated more rapidly than the green areas, which seemed to withstand weather action as well under bronze as under normal exposures. Probably the green stain is due to the formation of basic cupric carbonate in the pores of the marble, whereas cupric oxide is the main cause of the brown stains.

Different marbles were affected in different ways, but the tests indicated the need to divert the wash from bronze away from marble where the two materials are used in conjunction.



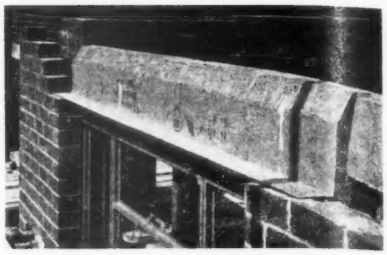
Small sewage works. The Ministry of Housing and Local Government have issued a *Memorandum on Principles of Design for Small Domestic Sewage Treatment Works*, prepared 'in the hope that it will be of help to housing and sanitary authorities who are faced with the necessity for providing, at reasonable expense, adequate sewerage for small villages or small new housing estates in places where it would be too costly, or otherwise impracticable, to drain the houses concerned by means of comprehensive sewerage schemes serving wider areas'.

The memorandum supersedes Appendix I of the Technical Appendices (1951) to the Housing Manual, 1949, and will be complementary to the Code of Practice for Small Sewage Treatment Works now in preparation. The memorandum deals with septic tanks, biological filters, secondary treatment by surface or sub-surface irrigation, pumping and maintenance. Drawings illustrate various kinds of tanks, filters and irrigation systems. In describing the methods to be used, and the design of the plant required, the memorandum has in mind the sewage from small groups of houses, in isolated locations, with a maximum resident population of about 300 persons.

The memorandum is published by H.M.S.O. price 9d. net, code number 75–24.

A Lintel for Flat Arches. A steel lintel for additional strength over a door opening has been on the market for some years, but it is only recently that an architect has extended the idea to window openings in cavity walls, where it is desired to have a brick flat arch externally. The usual supporting angle iron needed the addition of some sort of tray protection across the cavity, but the new lintel combines both duties and should save time on the job.

The section of the lintel is shown in the accompanying drawing; it is made in heavy-gauge steel, hot-dip galvanised after manufacture, and can be had in two heights—6 in. and 9 in.—to suit concrete internal lintels of corresponding heights. Once the steel lintel has been placed across the opening both the flat arch and the inner skin can be built up immediately while at the same time the lintel will divert any cavity moisture and lead it to the outside. The bottom leg of the lintel is long enough to support the flat arch without any temporary strutting, and the length of the top leg is sufficient to accommodate a cavity of a little over 2 in. wide.



The Dorman Long lintel. Left, a section and, above, a photograph showing the lintel in position

The lengths of the standard types are suitable for clear openings of 1 ft. to 5 ft. 3 in. for the 6 in. deep type, and for openings 5 ft. to 7 ft. for the 9 in. deep type. The lintel is marketed by Messrs. Dorman, Long and Company, Ltd., of Middlesbrough, and is called the Dorman Long lintel. The company's London address is Terminal House, 52 Grosvenor Gardens, London, S.W.1.

More Catalogia. Messrs. Crittall have issued a sumptuously-produced catalogue, No. 163, giving details of all their products, windows of various kinds, doors, partitions, lantern lights and the rest. Large-scale detail diagrams give all the information an architect needs to have beside him on the drawing-board. Brief accounts are given of the various processes through which the components pass, and the photographic reproductions of buildings incorporating Messrs. Crittall's products form in themselves a collection of architectural styles both at home and abroad. In view of the obvious expensiveness of the catalogue it is not surprising that Messrs. Crittall cannot distribute it indiscriminately.

British Standards recently published.
B.S. 952: 1953. **Glass for Glazing. Classification and Terminology (Including Thicknesses and Tolerances).** This is a revision of the 1941 Standard, with a slightly different title. Part I includes descriptions of the various kinds of glass that are obtainable, with their limits of thickness and variations in weight per sq. ft. Part II deals with the terminology of work that can be done on glass, such as bevelling, sandblasting, acid embossing, silvering and so on. An appendix gives descriptions and illustrations of bending curves in common use. Obtainable from the British Standards Institution, (new address) 2 Park Street, London, W.1, price 5*s.* net.

Notes and Notices

NOTICES

Designation of Architects. The Salaried and Official Architects Committee wish to call the attention of members, particularly those employed in public offices, to the following resolution of the Council:

'That in view of the principles and implications of the Architects (Registration) Act 1931, the synonymous use of the terms "Architectural Draughtsman" and "Architectural Assistant" is to be deprecated as detrimental to the status of the profession, and it is, therefore, advocated that all those whose names have been recorded in the Statutory Register of Architects shall be officially designated "Architects" or "Assistant Architects", whenever engaged upon work of a building nature whether or not in departments or offices controlled by a member of this or any other profession.'

Information about Salary Scales in Public Offices. The Salaried and Official Architects Committee also wish to remind members and Students who may be considering applying for employment in the architectural departments of local authorities and other public bodies that information about salary scales and conditions of service operating in these offices may be obtained on request from the Secretary, R.I.B.A.

New Building Materials and Preparations. The attention of members is drawn to the fact that information in the records of the Building Research Station, Garston, Watford, Herts, is freely available to any member of the architectural profession, and architects would be well advised when considering the use of new materials and preparations of which they have had no previous experience, to apply to the Director for any information he can impart regarding their properties and application.

BOARD OF ARCHITECTURAL EDUCATION

R.I.B.A. Maintenance Scholarships in Architecture. The following R.I.B.A. Maintenance Scholarships have been awarded for the year 1953–1954: an R.I.B.A. 4th and 5th Year Maintenance Scholarship of £60 per annum to Mr. K. W. Barnes of Wallington, Surrey; an R.I.B.A. Howe Green 4th and 5th Year Maintenance Scholarship of £40 per annum to Mr. J. W. Francis of Slough, Bucks; an R.I.B.A. Houston Maintenance Scholarship of £125 per annum to Mr. J. D. Connell of London, S.W.10; THE BUILDER Maintenance Scholarship of £75 per annum to Mr. P. G. Wentworth-Shields of London, S.W.1.

The Maintenance Scholarships previously awarded to the following candidates have been renewed: Mr. D. S. Bremner (Aberdeen School of Architecture, Robert Gordon's Technical College—R.I.B.A. Houston Maintenance Scholarship of £125 per annum); Mr. B. E. Clack (School of Architecture, The Polytechnic, Regent Street, London—R.I.B.A. Houston Maintenance Scholarship of £125 per annum); Mr. A. G. H. Morrow (Department of Architecture, The Northern Polytechnic—R.I.B.A. Houston Maintenance Scholarship of £125 per annum); Mr. D. G. Potter (School of Architecture, The Polytechnic, Regent Street, London—R.I.B.A. Houston Maintenance Scholarship of £125 per annum); Mr. W. B. Sidnell (Bartlett School of Architecture, University of London—R.I.B.A. Houston Maintenance Scholarship of £125 per annum); Mr. A. G. Diprose (Architectural Association, School of Architecture—Ralph Knott Memorial Maintenance Scholarship of £45 per annum).

COMPETITIONS

Sheffield University
The University of Sheffield invite architects registered under the Architects' Registration Acts and resident in Great Britain, Northern Ireland or the Republic of Ireland to submit, in competition, designs for certain buildings to be erected on sites within the central area of the University, together with a layout and sketch elevations for other buildings also to be located within that area.

Assessors: Sir Percy Thomas, O.B.E., Past President, Mr. F. R. S. Yorke [*F*], and Mr. Gerard Young, J.P.

Premiums: £5,000, £3,000, £2,000.

Last day for submitting designs: 31 October 1953.

Conditions may be obtained on application to: The Secretary, Architectural Competition, The University, Sheffield. Deposit: £2.

Dublin Port and Docks Board: New Head Office Building. The Dublin Port and Docks Board invites designs in competition for a new Head Office Building. The competition is open to all qualified architects who are:

(*a*) Holders of the Degree of Architecture of the National University of Ireland.

(*b*) Members or Fellows of the R.I.A.I.

(*c*) Members of the R.I.B.A. (or allied societies) *who are practising in Ireland.*

Assessors: Mr. John M. Fairweather, Mr. Vincent Kelly [*F*], Mr. Alfred E. Jones.

Premiums: £700, £500, £200, £100.

Last day for submitting designs: 2 November 1953.

Conditions may be obtained on application to the Secretary, Dublin Port and Docks Board, Westmoreland Street, Dublin. Deposit: £3 3*s*.

Church at Sighthill, Edinburgh. The Church of Scotland Home Board invites architects *resident in Scotland* to submit designs in competition for a church and ancillary buildings for a site at Sighthill, Edinburgh.

Assessors: Professor Robert H. Matthew, C.B.E. [*A*], Harry Taylor [*A*], Architect to the Church of Scotland Home Board; The Rev. Professor J. G. Riddell, D.D., Convenor of the Church of Scotland National Church Extension Committee.

Premiums: £750, £450, £300, £200, £100.
Last day for submitting designs: 30 January 1954.

Last day for questions: 15 October 1953.

Conditions may be obtained on application to the Rev. Ivan F. Tibbs, M.A., The Church of Scotland Offices, 232 St. Vincent Street, Glasgow, C.2. Deposit: £2 2*s*.

County of Cornwall. Proposed Secondary Modern School, Falmouth. The County Council of Cornwall propose to hold a limited competition for the design of the above buildings, estimated to cost £184,000, and in consultation with the R.I.B.A. have appointed Mr. Howard V. Lobb, C.B.E. [*F*] Assessor to advise them on the conduct thereof. Registered architects willing to compete should send in their names by 31 October 1953, giving such information as they may think likely to advance their claims to be admitted to the competition. From these names it is proposed to select a limited number to compete, each competitor receiving the sum of £350 for the preparation of his design.

It is expected that the competition conditions will be available early in November, and that a period of one month will be available in which competitors may raise any questions, the final design being submitted by the middle of March 1954.

All applicants must be prepared to work to this programme and to agree to prepare the necessary working drawings to enable tenders to be received to allow a start to be made on the work during February 1955. Application should be made to: E. T. Verger, Clerk of the County Council, County Hall, Truro, Cornwall.

COMPETITION RESULTS

New Head Office Building for the Uganda Electricity Board, Kampala, Uganda

1. Mr. E. I. Graaf.
2. Messrs. Peatfield [*A*], Mayo [*A*] and Bodgenor [*A*].
3. Messrs. Nurcombe [*F*], Summerly [*A*] and Lange.
4. Mr. J. M. Shunn [*A*].

Highly commended: The Planning Group of Cape Town; Mr. H. Bramhill [*F*]; Mr. G. Subiotto [*A*].

Hospital at Doha, Persian Gulf.

1. Mr. John R. Harris, A.A.Dipl. [*A*].
2. Mr. Alister G. MacDonald [*F*]; Mr. Eric D. Maidment [*A*].
3. Dr. C. L. P. Franck [*A*].

ALLIED SOCIETIES

Changes of Officers and Addresses

Coventry Society of Architects. Chairman, F. B. Reyner [*A*].

Northern Architectural Association, Cumberland Branch. Chairman, H. Irving Graham [*L*], Messrs. Graham and Roy, 6 Paternoster Row, Carlisle.

Aberdeen Society of Architects. President, J. G. Marr [*F*].

Edinburgh Architectural Association. Secretary and Treasurer, T. Graham Salmon, 43 York Place, Edinburgh 1.

Royal Australian Institute of Architects, Western Australian Chapter. President, O. V. Chisholm, 55 St. George's Terrace, Perth, Western Australia.

Royal Victorian Institute of Architects. President, Lieut.-Col. W. Balcombe Griffiths, M.C. [*A*]. Hon. Secretary, Harry S. Wimbush [*F*].

GENERAL NOTES

R.I.B.A. Cricket Club

R.I.B.A. *v.* **R.I.C.S.**—The R.I.B.A. played their annual match against the R.I.C.S. on 19 August on the College of Estate Management's Ground at Hinchley Wood. The game, played in lovely weather, resulted in a very good win for the R.I.B.A. by 91 runs. The scores were:—

R.I.B.A.

J. G. Batty, l.b.w. b. Bush]	12
G. Fyson, l.b.w. b. Bush	12
B. S. Smyth, c Travis b. Bush	11
J. Kennedy Hawkes, c. Gray, b. Bush	55
D. Le M. Brock, l.b.w. b. Bush	2
L. G. W. Bishop, c. Robins, b. Gray	4
P. Bynoe, l.b.w. b. Thurlow	6
J. Beaverstock, b. Gray	5
C. A. R. Norton, not out	50
F. G. Cooper, b. Gray	20
R. R. Fairbairn, b. Gray	6
Extras	10
Total	193

H. Bush—5 for 91; D. Gray—4 for 73; D. Thurlow—1 for 19.

R.I.C.S.

M. Fletcher, l.b.w. b. Smyth	0
A. Goater, c. Baverstock, b. Smyth	16
M. Wilby, b. Smyth	0
G. Devenold, b. Cooper	5
L. A. Travis, c. Baverstock, b. Bynoe	24
H. Bush, c. Brock, b. Cooper	43
R. Penny, l.b.w. b. Bynoe	1
J. S. Bell, b. Bynoe	10
D. Thurlow, c. Baverstock, b. Bynoe	0
D. Gray, c. K. Hawkes, b. Bynoe	0
G. Robbins, not out	1
Extras	2
Total	102

P. Bynoe—5 for 13; B. S. Smyth—3 for 38; F. G. Cooper—2 for 35; J. G. Batty—0 for 14.

R.I.B.A. *v.* **C.C.C.** A match against the Club Cricket Conference was played on Wednesday 2 September. As the results given below show, the C.C.C. proved much too strong for the R.I.B.A. side, but it was nevertheless a very enjoyable game. In spite of the very heavy rain in the morning, a start was made just before lunch, and it was a beautiful sunny afternoon.

The results were as follows:

R.I.B.A.

J. Kennedy Hawkes, c. Brown, b. Cuthbertson	4
J. G. Batty, c. Brown, b. Hill	15
B. S. Smyth, c. Brown, b. C. S. Davis	22
D. L. Robinson, c. Sherwood, b. C. S. Davis	34
D. Le M. Brock, c. Sammon, b. C. S. Davis	1
D. A. Woodley, st. Forsyth, b. C. S. Davis	13
C. A. R. Norton, b. C. S. Davis	13
A. Douglas, c. Hill, b. Sears	19
F. G. Cooper, c. Sears, b. C. S. Davis	4
J. Baverstock, b. Sears	2
R. G. Syms, not out	1
Extras	1
Total	129

C. S. Davis—6 for 22; L. A. Sears—2 for 28.

C.C.C.

P. V. Sherwood, b. Cooper	15
A. A. Brown, not out	48
F. Micklethwaite, not out	72
Total (for 1 wicket)	135

L. A. Sears, K. Glendening, P. Bray, C. S. Davis, R. H. Hill, R. Sammon, A. Seaborne, C. C. Davis did not bat.

Obituaries

Sir Banister (Flight) Fletcher, D.Lit.(Lond.), M.Arch.(N.U.I.), F.S.A., F.R.I.C.S., President R.I.B.A. 1929–31, died on 17 August 1953. He was ex-Sheriff of the City of London, Officier de la Légion d'Honneur (France), Commander of the Order of Leopold II (Belgium), Commander of the Order of the Crown of Italy, Commander of the Order of the Crown of Roumania, Commander of the Order of George I (Greece), Commander of the Order of the Rising Sun (Japan), Knight Commander of the Order of the Excellent Crop, with Grand Cordon (China), Hon. Member of the British Academy of Arts at Rome, Hon. Corresponding Member of the American Institute of Architects, Membre Correspondant de la Société Centrale des Architectes Français, Membre Correspondant de la Société des Architectes Diplômés par le Gouvernement, Godwin Bursar 1893, Medal of Merit, Tite Prize Competition 1895, Institute Medallist (Essays) 1896.

Born in London in 1866, the eldest son of Banister Fletcher, Professor of Architecture at King's College, London, and sometime M.P. for north-west Wiltshire, Banister Fletcher became a student at University College and then was articled to his father. He subsequently studied architectural design for six years at the Royal Academy Schools under Norman Shaw, Alfred Waterhouse, Sir Arthur Blomfield, J. L. Pearson and Phene Spiers. He also studied at the Architectural Association and in the drawing schools at King's College, and gained practical experience in the carpentry and woodcarving workshops. He later entered the studio of M. Fasnacht, of the École des Beaux Arts, Paris. After short periods as an assistant he entered into partnership with his father and brother.

In the course of the partnership he was responsible for a wide variety of architectural work, including flats, shops, houses, churches, schools and factories. In addition to his famous *History of Architecture on the Comparative Method*, which has been translated into many languages, his literary works are *Andrea Palladio: His Life and Works*; *Architecture and the Humanities*; *The Influence of Material on Architecture*; *The English Home*; *Architectural Hygiene*; and *Carpentry and Joinery*. He was also in great demand as a lecturer and for a time acted as Professor at King's College, London, where he formed the architectural museum of photographs, casts and drawings and a collection of some 15,000 lantern slides.

Sir Banister was Vice-President R.I.B.A. 1925–27, Chairman of the Practice Committee 1927–29 and President R.I.B.A. 1929–31. He also served on the Council and the Board of Architectural Education, the Unification Committee, the Thames Bridges Conference, the London Architecture Bronze Medal Jury, the Town Planning and Housing Committee, the Reconstruction Committee set up to consider post-war reconstruction and planning, and many other committees. He was called to the Bar by the Inner Temple in 1908 and knighted in 1919. He was Senior Sheriff of the City of London 1918–19 and Master of the Worshipful Company of Carpenters in 1937. He was Chairman of the Greater London Regional Planning Committee. He was made an honorary member of the British Academy at Rome. Always a generous supporter of the Architects' Benevolent Society, he also took a keen interest in its work and was a Vice-President for many years.

AN APPRECIATION. Sir Banister Fletcher was one of the most learned and versatile members of the R.I.B.A., and his name has been a household word among architectural students for more than fifty years. He may not go down to posterity as one of our foremost architects, but he had a considerable practice. The largest and latest of his buildings—the Gillette Factory on the Great West Road near London, opened in 1937—showed that he was capable of moving with the times, not so fast or so far as a younger man would have done, but a long way for a septuagenarian. A handsome monograph by Mr. W. Hanneford-Smith, published in 1934, fully describes and illustrates his other buildings, as well as many sketches, student-designs, and competition-designs. For 64 years he was a loyal and very active member of the R.I.B.A., filling the Presidential chair with tact and dignity from 1929 to 1931. During his term of office he had to deal with two matters of major importance: the passage of the Architects' Registration Bill through Parliament and the arrangements for the competition for new premises in Portland Place. He defrayed a substantial part of the cost of printing our splendid library catalogue in 1937.

He was a talented lecturer, his courses in historical architecture for London University drawing large audiences. This long experience of lecturing, coupled with his additional qualification as a barrister, may have helped to account for his tendency to treat other gatherings—whether a meeting of the R.I.B.A. Council or of City Fathers—as a lecture audience, and to address them as though they were still *in statu pupillari*. I have heard him administer a quite undeserved reprimand to a committee whose average age was seventy at least—but then he was 85! This superb assurance was doubtless due to his confidence in his own great abilities, but sometimes it was rather hard to bear. Yet beneath a manner which was at times aloof or dictatorial, he was a very sociable person and could be a most genial companion.

Many now elderly architects, myself among them, succeeded in scraping through the Institute examinations with more or less help from the correspondence courses which he conducted fifty years ago in partnership with F. R. Farrow. At the age of 22 he became a Liveryman of the Worshipful Company of Carpenters, in which his father was a prominent figure; and after succeeding him in due course as Surveyor to the Company, he became Master in 1936. Right up to the time of his death, he was most actively concerned with the Company's affairs and regularly attended all its functions, preserving his upright carriage and immaculate appearance to the end. In all his manifold contacts he maintained the prestige of our profession and our Institute, to our great benefit.

Yet, when all is said and done, his most enduring memorial is his famous *History of Architecture on the Comparative Method*, which first appeared in 1896. Of this remarkable book, over 120,000 copies have been sold, and a fifteenth edition has just been published. No such sensational success has ever been attained by any other manual of architecture; and it is not surprising that Sir Banister was always frankly proud of his achievement. In its early stages it was very much smaller than it is today; and its authors were then announced as Professor Banister Fletcher and his son, afterwards Sir Banister. Its readers must have wondered to whom the original plan of the book should be ascribed, but all the evidence is that the younger man did most of the work, whether the scheme was his or not.

Nowadays it is fashionable to scoff at architectural styles, and to claim that architectural evolution is mainly determined by climatic, geological, social and religious influences prevailing in each region at each period. That was precisely the thesis propounded by the two authors in their first edition, and they faithfully adhered to it throughout. But, as the book grew with each subsequent edition, their clear

and readable outline of architectural history was obscured and overlaid by masses of dates and other information—all admirable, but transforming their historical manual into an encyclopedia of architectural history. Students who used the first edition had to turn to other books for additional information and details, thereby learning how to undertake some research for themselves—an excellent thing; but a student today, using the fifteenth edition, has no need or incentive to look elsewhere. Everything is there to hand; and that is almost the only objection to the book as it stands today—it is too perfect!

Its gradual transformation was the work of many people; but always under the direction and inspiration of Sir Banister himself. The beautiful drawings were mostly made by the late John Davidson and G. G. Woodward. The constant revision of the text was mainly done by Sir Banister, but much of it was due to his first wife, formerly Lady Bamford-Slack, whom he married in 1914. It is interesting to trace the stages of growth. The first edition was a small, squat volume of about 300 pages with about 160 illustrations, of which half were reproduced in collotype from photographs. The fourth edition of 1901 had become much fatter, the number of pages had nearly doubled, and there were now 128 pages of line-drawings on which 1,300 subjects were delineated. A substantial section on the so-called "Non-Historical Styles" had been added. In the fifth edition of 1905, the size of the page was enlarged, and the number of line-drawings increased to comprise 2,000 subjects. The eighth edition of 1928 had still larger pages, and the subjects illustrated on the line-drawings had grown to 3,500. Since that date, further expansion has followed, and some attention has been given to the 20th century, but the character and form of the eighth edition has not been materially altered.

That is a brief outline of its genesis and growth. It still remains a standard work, though of late years perhaps it has barely kept pace with modern scholarship or modern ideas. That was hardly to be expected after its distinguished author had reached fourscore; and in any case complete overhaul would have been a herculean task. Yet though it is easy to pick a few small holes in so comprehensive a work, the fact remains that it was a notable achievement, carried out with great learning, imagination, and immense industry by the first-class brain of a man who really loved architecture. M. S. B.

Mr. Martin A. Buckmaster, F.S.A., A.R.C.A. [*Hon. A*], adds the following note: 'May I contribute a note of appreciation to the late Sir Banister Fletcher's achievements in the literary field of architecture, as I consider he has done as much service to the profession in this way as Inigo Jones and Wren have done in their practical manner. Unfortunately I met him infrequently, but when we did meet he was always most kind and appreciative of my efforts in architectural training at Tonbridge School. . . . That Sir Banister Fletcher's great work helped me in my teaching and lecturing, a constant source of inspiration, I should like to record to his memory my grateful thanks.'

Henry Martineau Fletcher [*F*], Hon. Secretary R.I.B.A. 1934–38 and Vice-President 1929–31, died on 7 August, aged 83.

Sir Ian MacAlister [*Hon. A*] writes the following appreciation and account of Mr. Fletcher's career:

'It is not easy to speak about such an old friend as Harry Fletcher. Those, and they were many, who knew and loved him will realise that. He was one of the most faultless characters that I have ever known, and yet he was the most sincerely modest of men. He could never have quite understood why people thought and spoke of him as they did.

'It is not perhaps widely known that he resolutely refused three honours that most men would quite properly have welcomed. He refused the Presidency of the R.I.B.A., he refused the Royal Gold Medal for Architecture, and he refused the award for the best building of the year in London. It was not a matter of pride, still less of ostentation. He just did not think that he deserved these honours and in spite of the assurances of friends he quietly put them aside.

'In his forty or more years of active work for the R.I.B.A. he never spared himself in any duty that fell upon him. Much of this work was dull and even irksome, but he carried on cheerfully as long as his strength held out. Then came the call of the war. As an air-raid warden over seventy years of age he served quietly and bravely through all the worst of the London air raids from the first bomb to the last.

'Born in 1870, the son of John Martineau Fletcher, he was educated at Marlborough and proceeded with a classical scholarship to Trinity College, Cambridge, where he was placed in the First Class in Part I of the Classical Tripos in 1892. He was articled to the late Mervyn Macartney and at the end of his pupilage he made a long tour in Italy and Greece in company with the late Sydney Kitson. He began independent practice in 1897 and for nearly 20 years his work was almost entirely in the country, building medium-sized and small houses, and altering, repairing, and adding to houses of all ages and sizes in many counties. In combination with the late Godfrey Pinkerton he designed the harbour offices at Manaos, Brazil, Cecil Sharp House in London, and the war memorial at St. John's College, Cambridge. He was also responsible for additions and alterations at Trinity College and Emmanuel College, Cambridge.

'He was president of the Architectural Association in 1918–19, master of the Art Workers' Guild in 1930, president of the Franco-British Union of Architects in 1934, chairman of the Board of Architectural Education from 1927 to 1929, vice-president of the Royal Institute of British Architects from 1929 to 1931, and honorary secretary from 1934 to 1939.'

Mr. W. H. Ansell, M.C., F.S.A., Past President R.I.B.A., writes as follows:

'It was with great sorrow that I heard, on my return from France, of the death of my old friend H. M. Fletcher.

'To many of my generation he was an outstanding example of the architect plus scholar, a type becoming, I fear, rarer than it once was. The house he built on Campden Hill for a member of the Booth family is not only extremely clever in plan and adaptation to its site, but is also full of the most delightful and scholarly detail inside and out. It is well worth a visit from anyone interested in civilised architectural design.

'He always sought to impress younger architects with the importance of scholarship. Hence his interest in the British Schools at Athens and Rome. He was mainly responsible for initiating the Athens Bursary for masters in architectural schools, and until recently he was on the Faculty of Architecture of the British School at Rome where his discriminating, well-balanced judgments were of the utmost value.

'It was characteristic of his modesty and absence of self-seeking that when his name was suggested for the Royal Gold Medal because of his services to architectural education he refused to allow it to remain, saying that, in his opinion, the Medal was not instituted as a reward for merely general good work.

'Strangers sometimes found H. M.'s silences rather disconcerting, but actually he was an excellent raconteur with a choice sense of humour. Even the slightest of his formal speeches was spiced with wit and felicitous phrasing.

'He was a lover of France and things French, and always a keen supporter of the Franco-British Union. As the able secretary of the F.A.B.S. for many years he will be gratefully remembered.

'May a personal reminiscence be forgiven? I first met Harry Fletcher in the Art Workers' Guild Masque which was produced at Guildhall in 1899. He took the part of the demon Scampinus and, with Cecil Brewer and Charles Spooner, danced with vigour and skill.'

Thomas Wallis [*F*] died on 14 May, aged 81.

Mr. Wallis, who served his articles with the late Sidney Smith [*F*], architect of the Tate Gallery, specialised in industrial buildings. His best known are the B.O.A.C. building, the Firestone and Pyrene factories on the Great West Road and the Glaxo and Hoover factories at Greenford, but he also built many other factories. In addition, his designs were premiated second in the competitions for Marylebone Town Hall and for the Port of London Authority H.Q.

Mr. Wallis served for many years on the Science Standing, the Registration and the Salaried Members Committees.

Mr. Frank Yerbury, O.B.E. [*Hon. A*], Director of the Building Centre, writes as follows:

'Thomas Wallis, who died at the age of 81 in May of this year, was for most of his practising career one of the "characters" of the profession. Familiarly known as "Tommy", he was always popular in any company. His views on building were quite his own and his general approach to architecture mostly unconventional.

'He was articled to Sidney Smith [*F*] and when with him worked on the drawings for the Tate Gallery. In 1900 he went into the then Office of Works under Sir Henry Tanner and during his rather long period of service there entered for a number of competitions in his own time, either with a colleague or on his own. He had a number of minor successes, but his biggest achievements were being placed second in the Marylebone Town Hall and the Port of London Building Competitions and first in the Stoke Town Hall contest. The factory work for which perhaps he was best known came to him in about 1915 when so many new industrial buildings were called for in connection with the war effort. His reputation for factory planning brought him considerable work, much of which can be seen in the Great West Road and other commercial areas; possibly the Firestone factory being the best known. No doubt some of his earlier factories may be considered over stylised according to today's standards, but considering the time in which they were built it must be recognised that Tommy Wallis was an important pioneer in the revolution in the general conception of factory buildings and particularly in relation to those who had to work in them. He always held that a pleasant atmosphere was an essential to the well being of the workers, and was one of the first to persuade industrialists that first-class amenities —attractive lawns, flower beds and trees—not only had a great humanising influence but were sound from a purely commercial angle. He certainly made a great social contribution to factory life.

'In his later years when partially retired he kept himself busy by making pencil sketches, mostly of old buildings and rural scenes, all of them quite charming and competent.'

James Brown Nicol [*Retd. F*], Past President of the Aberdeen Society of Architects, and a former Governor of Robert Gordon's Technical College, died in a car accident on 25 January, aged 86.

Mr. Nicol was born in Dumbarton and educated at Aberdeen Grammar School. He trained with Messrs. Matthews and Mackenzie, Aberdeen. After qualifying he worked in Edinburgh for a time, then returned to Aberdeen about sixty years ago. There he went into partnership with the late Dr. Kelly, R.S.A. [*F*]. Dr. Kelly retired about twenty years ago, and Mr. Nicol took over the practice. He himself retired last May.

Mr. Nicol's best known work is probably the Royal Infirmary, Aberdeen, which was opened by the late King George VI in 1936, when he was Duke of York. Mr. Nicol also designed the Students' Union in Aberdeen and (with Dr. Kelly) the head office of Aberdeen Savings Bank in Union Terrace and St. Ninian's Church, Aberdeen. During the first world war Mr. Nicol designed concrete ships for the government.

Besides being a governor of Robert Gordon's Colleges from 1931 until his death Mr. Nicol was convener of the Arts and Crafts Committee for 19 years, and his experience and knowledge assisted in a great measure in the expansion of the School of Architecture.

John William Barrow [*A*] died on 3 November 1952, aged 67.

Mr. Barrow went first as pupil, then as assistant, to Messrs. Austin & Paley, Lancaster, from 1900 to 1910. He then went as senior assistant in the Building Department of the Cumberland County Council, moving to the City of Bradford as architectural assistant in 1912, where he stayed until the first world war. After the war he went to China as chief engineering and senior architectural assistant to the firm of Palmer & Turner, Architects and Civil Engineers, Shanghai and Hong Kong, with whom he remained until 1934.

During that time Mr. Barrow was associated with most of the major works carried out in China and Japan by the firm. He was structural engineer for one of the first skyscrapers in Shanghai, the 22-storey Broadway Mansions, completed in 1933. He was architect for the Kiangwan International Recreation Club and racecourse, Shanghai, in 1929, and for the 14-storey Cathay Hotel and several cotton mills in China and Japan.

In 1934 he returned to England and took up private practice in Warrington. His principal architectural works here consisted of the Tatler News Theatre, Chester, a new nurses' home, operating theatre and ward extensions to the Borough General Hospital, Warrington, and numerous church restorations and alterations in Lancashire. One of his most recent was the restoring of the burnt-out east end of Christ Church, Warrington, in 1949.

Mr. Barrow was a Freeman of the City of Lancaster.

Alfred Henry Hart [*Retd. F*], who died at Burton Bradstock last Easter Sunday, 5 April, aged 87, was educated privately and at the Royal Academy School, where in 1891 he was awarded the gold medal in architecture.

For some years he was an assistant in the late Sir Ernest George's office, where Sir Edwin Lutyens and Sir Herbert Baker were contemporary with him. After that he travelled largely and studied architecture in many European countries. He was a member of the A.A., from whom he obtained a travelling scholarship, and he was Hon. Secretary and Vice-President of the Association.

Starting practice in 1894, he first had chambers in Staple Inn and later, in partnership with the late P. L. Waterhouse, in Verulam Buildings, Grays Inn, when the following buildings were designed and carried out: Trafalgar House, Charing Cross; Parkside, Albert Gate; remodelling the Royal Colonial Institute; The Pryors, Hampstead; Clapham Maternity Hospital; Willing's premises, King's Cross; school buildings at Brighton and Swanage; and numerous private houses in different parts of the country particularly at Enfield. He was also associated with Sir Herbert Baker in the reconstruction of the Royal Empire Society's Headquarters.

He was a regular exhibitor at the Royal Academy and during the years he lived at Burton Bradstock in Dorset he was able to indulge in his favourite pastime of watercolour drawing, making delightful sketches of the many lovely villages near his home.

CHARLES W. REEVES, O.B.E., F.R.I.C.S. [*F*]

Sidney James Edwards, F.R.I.C.S. [*F*], died suddenly on the afternoon of Saturday, 14 March, aged 66.

Mr. E. A. R. Rahbula, O.B.E., M.C., F.S.A. [*A*], writes as follows:

'Edwards' work perhaps may not be well known to many in this country, though from time to time drawings of it were exhibited in the architectural room of the Royal Academy and published in the professional press. He had, however, had a very extensive practice in Ceylon, Malaya and southern India, and between the two wars he was responsible for many of the buildings of importance erected in Ceylon.

'The elder son of the late Joseph Edwards, the well-known mathematician, Edwards received his early education at St. Paul's School before going as a mathematical exhibitioner to Sidney Sussex College, Cambridge, where he graduated with an Honours degree in 1910. In the same year he was articled to the firm of Messrs. Gordon and Gunton, and after working at the A.A. and R.A. architectural schools he became an Associate of the Institute in 1912 and a Fellow in 1924.

'He took a special interest in reinforced concrete construction and in 1914 he was approached by the Chartered Bank of India, Australia and China to superintend the erection of their new buildings in Singapore, then one of the first wholly reinforced structures to be erected there. During the 1914–18 war, which broke out during his voyage out East, he was commissioned in the Indian Army Reserve of Officers and was attached to the Indian Sappers. He saw service at the quelling of the Singapore mutiny, was in India, Iraq and Iran and for some period was in command of a working party at Khrak, an island in the Persian Gulf. At the end of hostilities he spent some time in Singapore, then upon winning an open competition in the design for the Town Hall and Municipal Offices, Colombo in 1922 he proceeded to Ceylon. Later Edwards expanded his interests to Madras, where in 1936 he was entrusted with the design of the new university buildings. The many works for which he was responsible included buildings of numerous descriptions, public and commercial, domestic and ecclesiastical.

'Under the double strain of work and climate Edwards contracted ill-health which compelled him to sever his connection with the East shortly before the last war and handicapped him until his death. Despite this drawback he devoted himself to war work in Britain, particularly in the matter of industrial research, and occupied a position in the Civil Service until a short time before he died.

'He was ever a gay and cheerful companion and in his younger days was an ardent lawn tennis player of more than average ability. In later years he became an enthusiastic fisherman. Notwithstanding his more active pursuits he was never more happy than when with sketch-book and pencil he was recording his impressions of things, buildings and people that attracted his interest.'

Geoffrey Wyville Home [*Retd. F*] died on 11 April at the age of 66.

Mr. Home received his architectural training at the Royal College of Art and the Architectural Association. He was articled to the late Walter Cave [*F*] and was awarded the Architectural Association silver medal in design in 1911.

After working with various London architects, including Lanchester & Rickards and Simpson & Ayrton, Mr. Home set up in private practice in 1923 in partnership with Shirley Knight, M.T.P.I. [*F*]. The works completed by the partners included the Pavilion at Bournemouth and a senior elementary school at Burton-upon-Trent (both won in open competition), together with banking premises in London and the home counties, and houses in Mill Hill, Finchley, Highgate, Northampton, Woldingham, Sevenoaks, etc.

Shortly before the second world war Mr. Home entered the office of the Architect to the London County Council, from which he retired as Senior Assistant Architect in 1949.

Mr. Home served on the Competitions Committee of the R.I.B.A. and on the Council of the Architectural Association.

During the first world war he served in the Artists' Rifles and in the Royal Regiment of Artillery.

Mr. Home's partner, Mr. Shirley Knight, M.T.P.I. [*F*], writes the following appreciation:

'It is just 30 years since Home and I left the office of Sir John Simpson and Maxwell Ayrton and set up in partnership. It was a happy combination in that our respective qualities were fortunately complementary, and we invariably worked together on every building we designed.

'Home was a brilliant and rapid designer with an integrity in design that was exceptional. He always maintained that the best training was obtained by experience in competition work because there only the best was "good enough".

'To the outside world he was usually boisterously gay, with an infectious laugh, or alternatively rather aggressive. As one who knew him intimately I can say that more often than not those moods concealed a natural shyness and affection realised by few.

'What started as a partnership developed into a friendship which increased with the years and when he died I lost my greatest friend.'

John Archibald West [*F*] died suddenly on 25 April, a few weeks before his seventieth birthday.

Mr. West received his architectural training in the City Architect's Department, Nottingham. After qualifying as an Associate of the Institute in 1919 he went to Carlton Urban District Council as housing architect under the engineer and surveyor. In 1924 Mr. West became surveyor, engineer and architect to the Council, and remained in that post until his retirement in 1948. Even after retirement he continued to act as consultant engineer and surveyor to the Council, and he also did much voluntary work as architect and surveyor in the parish of All Hallows Church, Gedling, particularly in connection with its restoration and with alterations to the Memorial Hall.

In all, over a thousand houses were erected under Mr. West's supervision, and he was at the very beginning of his period as surveyor

responsible for a large conversion scheme which comprised the abolition of the pail closet system in the district—prior to 1924 only about 1,500 houses out of the 4,200 in Carlton possessed water closets.

In his early years Mr. West played cricket for Christ Church C.C., Nottingham, and was also a golfer. As a Freemason he was a Past Master and for some years Director of Ceremonies of the Annesley Lodge at Nottingham.

He was active up to the time of his death, which was very sudden.

Robert Raeburn Grieve [*L*], died on 21 March at the age of 75.

Mr. Grieve, who was born in Edinburgh, was articled to Messrs. Leadbetter & Fairley, architects, of that city. For a few years afterwards he was with his father's joinery firm, a well-known one, which carried out work for Sir Robert Lorimer.

Mr. Grieve then spent a number of years in Australia for health reasons. Returning to Scotland, he became a Licentiate of the Institute in 1931. He carried out various works in Edinburgh, among them restorations and alterations to the University Settlement at High School Yards, Kirk o' Fields, and Cameron House.

William Ernest Dickie [*L*] died on 1 July 1952, aged 60.

Mr. Dickie, who was articled in Glasgow, practised for some years in Kimberley, South Africa, returning to Glasgow in 1930. In Kimberley his chief work was the Boys' High School. Mr. Dickie's particular field of work was in acoustics. He was a director of the Scottish Film Council.

Trevor John Tatham [*Retd. L*] died on 29 December 1952, aged 74.

Mr. Tatham trained with Mr. Herbert Ellis of 46 Fenchurch Street, London, and later became a partner in the firm. In 1915 ill health compelled him to give up city life, and he settled in Lee-on-Solent, Hants, practising there until his retirement at the beginning of World War II. In 1938 he became an alderman on the Gosport Town Council.

William Henry Cunliffe, B.E.M. [*L*], died on 22 April at the comparatively early age of 50.

Mr. Cunliffe, who held the post of assistant architect in the Chief Engineer's Department of the Metropolitan Water Board, was responsible among other works for the pumping station at Lee Bridge, the primary filters building at Stoke Newington, stores at Cricklewood, a booster station at Bishop's Wood and the remodelling of the Woodford, Fortis Green, Stoke Newington and Ferry Lane pumping stations.

Harold Sydney Rogers, F.S.A. [*F*], past President of the Berks, Bucks and Oxon Architectural Association and winner of the R.I.B.A. Architecture Bronze Medal, Berks, Bucks and Oxon in 1946, died on 25 February at the age of 76.

Mr. Rogers read history at Oxford University and took the degree of M.A. He was then articled to Messrs. Micklethwaite & Somers Clarke, of Westminster (Mr. Micklethwaite being Surveyor to Westminster Abbey). On qualifying he practised for a time in Westminster, then returned to Oxford to practise in 1912. He specialised in ecclesiastical work, including the furnishing of the military and Lady chapels in Christ Church Cathedral and the design of St. Luke's Church, Cowley. Mr. Rogers served for 22 years on the Oxford City Council and was Mayor of Oxford in 1937. He was also a J.P. He was President of the Berks, Bucks and Oxon Architectural Association in 1925 and represented that body on the Council and the Allied Societies' Conference.

Henry Frederick Webb [*L*] died on 4 July, aged 74.

Mr. Webb practised in London from 1922 to 1939, in Pinner from 1939 to 1950 and at Mundesley-on-Sea, Norfolk, from 1945 to 1949. He built the Ambassador's Cinema at Hendon, the Lido Cinema at Islington, a number of blocks of flats, including Hillside Court, Finchley Road, West Heath Court, Golders Green, and others at Hendon and Pinner, council housing schemes at Tilbury, Eastbourne and Bournemouth, besides taking a large part in the design and erection of certain portions of the White City Exhibition. He was at one time Chairman of Mundesley Parish Council.

Mr. Webb was always much interested in inventions, and was for many years a Vice-President of the Institute of Patentees. He himself invented a spring dance floor in 1927 and took out a patent for an improved water tap, and during the second world war submitted a number of ideas to various government departments.

Charles Frederick Blythin [*F*] died on 7 July, aged 49.

Mr. Blythin qualified at the Northern Polytechnic and practised in Croydon and London. He was joint winner of the competition for a memorial to the missing auxiliary naval forces in 1948, and he built a number of other memorials throughout the country, including that in Hanwell cemetery to the civilian dead of Westminster. He also built the Gilbert Scott Primary School at Croydon and a secondary school at Heathfield, Sussex, municipal housing schemes (including flats) at Hornsey, Croydon, and Woolwich, the Westminster City Library in Charing Cross Road and extensions to the Queen's Hospital, Croydon. During the war Mr. Blythin served with the Royal Engineers.

His partner, Mr. Leonard C. Holbrook [*A*] carries on the practice of Riches & Blythin in Northumberland Avenue and at Croydon.

Geoffrey Hyde Williams, M.C., M.T.P.I. [*F*], former Vice-President of the Berks, Bucks and Oxon Architectural Association, died on 10 July, following an operation, at the age of 71.

Mr. Williams was the son of the Rev. Gerard Williams, one time Rector of Huddersfield, and was articled to a Mr. Cocking of that town. On completing his articles in about 1903 he joined the staff of the London County Council, remaining there until 1909. He then went to Windsor as assistant to Mr. Herbert Spink [*F*]. In 1911 he went to America and Canada but immediately returned home to volunteer for military service on the outbreak of World War I. He served with distinction with the York and Lancaster Regiment in France and Italy and finally with the Army of Occupation in Germany. He was awarded the M.C.

On demobilisation he returned to Windsor to become Mr. Spink's partner and so remained until his death. The practice was varied, and included private houses, banks, schools, licensed houses, factories and hospital work, and during his last years Mr. Williams carried out a considerable amount of work at the Royal Holloway College, including the provision of a new chemistry laboratory. Mr. Williams held the R.I.B.A. Distinction in Town Planning.

His partner, Mr. Spink, writes of him: 'I first met Geoffrey Williams over 50 years ago when we shared rooms together. To know him was to love him. He had a most charming disposition, a keen sense of humour and a ready wit, and these qualities, combined with high intellectual attainments and absolute integrity, earned the respect and affection of all who came to know him.

'A great reader and a lover of poetry, he had a touch of the romantic in his nature and he was intensely patriotic. I well remember the haste with which he returned from Canada at the outbreak of the 1914–18 war to offer his services and how he again offered to serve in 1939.

'It was always a pleasure to work with him and as his friend for 50 years and his partner for 34 years I can vouch for his sincerity. He was conscientious in all he did and gave the same careful attention to detail in small things as he did to works of much importance. It was a privilege to know him and he will be remembered with affection.'

Arnold William Harwood [*F*] died on 31 May, aged 67.

Mr. Harwood received his training in the office of the late George Lister Sutcliffe [*F*]. He entered into partnership with Mr. Eyre Walker [*F*] in 1910, and Mr. P. A. Cranswick, A.M.P.T.I. [*A*] joined them in 1951. Mr. Harwood's practice was based on London throughout his career, but he nevertheless did work in various parts of the country. Among his principal works are the Union church and memorial hall at Mill Hill (the chancel of the church in conjunction with Mr. Martin S. Briggs [*F*]), the church hall and village institute, Radlett, the Lansbury Club at Teddington, research laboratories at Stanton and Thornton in Cheshire, offices, Devereux Court, Strand, London, and a large number of private houses.

Mr. M. Eyre Walker [*F*] writes of Mr. Harwood as follows:

'Although the architectural work of the late Arnold William Harwood may not be his chief memorial in the years to come many will long remember the man himself, with gratitude, for qualities which no academic degree could confer. His uprightness of character founded on deep religious conviction revealed itself in all his private and business dealings. His cheerfulness, faith and clear-sightedness in all difficulties and hard times were an inspiration.

'As a great lover of his fellow men his activities on their behalf extended outside his architectural practice. He was for many years a very active member of Toc H, a manager of the church school at Radlett, where he lived, and a Diocesan Lay Reader. He was also closely associated with the London Police Court Mission and an authorised visitor to Pentonville Prison.'

Mr. P. A. Cranswick [*A*] adds: 'With the death of Arnold Harwood we have lost a man who, quietly and without publicity, by his kindness, wisdom, great personal and absolute integrity made an inestimable contribution to the standing of the profession.'

Thomas Henry Smith [*F*] died on 19 June, aged 79.

Mr. Smith studied at the Bartlett School of Architecture and was articled to Mr. F. J. Brewer [*F*] of Richmond. Mr. Smith later became a partner and subsequently, when Mr. Brewer went abroad, took over the practice completely. He was joined in 1938 by his son, Mr. F. T. Smith [*L*], who now carries on the practice.

Mr. Smith carried out work in the neighbourhoods of Richmond and Twickenham, including a housing scheme for Twickenham Borough Council, the Archer Wing to the Royal Hospital, Richmond, St. Catherine's

Convent, Cross Deep, new wards at St. John's Hospital, shops, flats, factories, offices and village halls.

Mr. Smith served for some years on his local council, and in 1934 was elected Mayor of Twickenham. He was an active member and President of the Richmond Rotary Club and was also well known in Masonic circles. He was Master of the Strawberry Hill and the St. Margaret's Lodges, and was ultimately appointed an Officer of Grand Lodge. He was a founder member of the Cambridge Park Bowling and Sports Club, Twickenham, and was a keen and skilful rose grower.

Benjamin Stevens, F.R.I.C.S. [*L*], died on 22 May, aged 68.

Mr. Stevens qualified at the Polytechnic, Regent Street, London, and started in personal practice about 1910. He specialised in hospital work and in church design and renovations. He was responsible for the Leaf Hospital and a block at the Princess Alice Hospital, both at Eastbourne, and for St. Elizabeth's Convalescent Home, Seaford. He also designed the Masonic Temple at Eastbourne, and a number of housing schemes in Sussex. Mr. Stevens also acted, both as honorary adviser and in a professional capacity, for a number of organisations concerned with convalescent work, including the Hertfordshire Seaside Convalescent Homes, the Trustees of All Saints' Sisters of the Poor and the Invalid Children's Aid Association.

From his early student days Mr. Stevens was a keen musician and church organist and choir master. He was a founder member of the Eastbourne and District Philharmonic Society and its vice-chairman since its inception, also its original conductor. He was a prominent Freemason and held high Masonic honours.

James Edward Shaw [*F*] died on 10 May at the age of 77.

Mr. Shaw, who qualified at King's College School of Architecture, University of Durham, is described by a relative as 'a very "ordinary" kind of architect who loved his work and while never aspiring to the heights, designed many everyday buildings of varied description which afforded him great pleasure.' Mr. Shaw worked to within a few weeks of his death.

Among his works were office blocks, houses and shops, a bus depot and car sheds for Newcastle Corporation, Lloyds Bank, Thirsk, and alterations and additions to various hotels and clubs.

Members' Column

This column is reserved for notices of changes of address, partnership and partnerships vacant or wanted, practices for sale or wanted, office accommodation, and personal notices other than of posts wanted as salaried assistants for which the Institute's Employment Register is maintained.

APPOINTMENTS

Mr. Sergei Kadleigh, A.A. (Hons.) Dipl. [*A*], has been appointed Reader in Architecture at the Royal College of Art and will be conducting his practice c/o the Royal College of Art, 23 Cromwell Road, London, S.W.7, as from 29 September 1953.

Mr. Gordon E. Rothen [*A*] has taken up an appointment as Senior Architect to the Iraq Development Board and his new address is Iraq Development Board, Baghdad, Iraq. He will be glad to receive trade catalogues and technical information.

Mr. Cecil J. Searle [*A*] has relinquished his position of Lecturer with the Department of Architecture and Building, South West Essex Technical College, to take up a post of Architect, under the Architect to the L.C.C., Historic Buildings Section, County Hall, London, S.E.1. He has changed his private address to 14 Warren Road, N. Chingford, London, E.4.

Mr. Dara R. Variava, Dip.Arch., Dip.T.P., A.M.T.P.I. [*A*], has resigned his post as the Senior Assistant Architect (Redevelopment) to the City Architect and Director of Housing, Liverpool, and has taken up the appointment of Assistant Government Town Planner for Ceylon as from 1 August 1953. His address is c/o Town and Country Planning Department, McCallum Road, Colombo, 10, Ceylon.

PRACTICES AND PARTNERSHIPS

Mr. Robert O. Bond [*F*] has taken into partnership **Mr. Robert W. Sutton** [*A*] and **Mr. Derek O. Bond** [*A*] and the partnership will continue under the style of **J. Owen Bond and Son** from St. Faith's House, Mountergate, Norwich.

Mr. J. A. K. Hope [*A*] and **Mr. W. H. G. Stenson,** M.C. [*A*], have resigned their appointments as Architects to the Government of Northern Rhodesia and have entered into partnership under the style of **Stenson and Hope.** They will practise from 3a Park Street, Salisbury, Southern Rhodesia, and will be pleased to receive trade catalogues, etc.

As from 31 May 1953 **Mr. Gordon Graham,** Dip.Arch. [*A*], has, for reasons of health, withdrawn from the practice of Bartlett, Graham and Gray. The practice will be continued by **Mr. Peter Bartlett,** Dip.Arch. [*A*], and **Mr. Colin Gray,** Dip.Arch. [*A*], under the style of **Bartlett and Gray,** Castle Gate Chambers, Castle Gate, Nottingham. (Nottingham 42772.)

Mr. F. J. Lander [*F*] has taken into partnership **Mr. E. C. C. Hughes** [*A*]. The practice will continue under the style of **Welch and Lander** at the same address, 38 Gloucester Place, Portman Square, London, W.1. (WELbeck 6551.)

Professor Robert H. Matthew, C.B.E. [*A*] has opened an office at 8 Palmerston Place, Edinburgh, 12. (Edinburgh 30428.)

Mr. W. A. E. Sewell, A.A.Dipl. [*A*], and **Miss Rosemary W. Gold,** A.A.Dipl. [*A*], are now in practice at 180 Piccadilly, W.1 (HYDe Park 4404) under the style of **Sewell and Gold.**

Messrs. Stroud and Nullis [*AA*] of 25 Ebury Street, London, S.W.1, have opened a branch office at 3 Church Path, Woking, Surrey, where they will be pleased to receive trade catalogues, etc.

Consequent on the death of **Sir Banister Fletcher,** his partner, **Mr. Herbert G. Tilley,** F.R.I.C.S. [*L*], will continue to practise under his own name at 3 King's Bench Walk, E.C.4.

Mr. John L. Werbeloff [*A*] has commenced practice at 402 Diamond House, 27 Parliament Street, Cape Town, S. Africa, where he will be pleased to receive trade catalogues, technical data, etc.

CHANGES OF ADDRESS

The new private address of **Mr. Robert T. Clough** [*A*] is 'Willowdene', Utley, Keighley, Yorkshire (Keighley 5222).

Mr. and Mrs. D. Cole [*AA*] have removed to 17 Sheffield Terrace, London, W.8.

Mr. Kenneth D. Coles [*A*] has removed to 3466 Shuter Street, Montreal, Quebec, Canada (Telephone HA—3495).

Mr. Donald P. M. Goldie [*A*] has removed to 21 Palace Court, Bayswater, W.2. (BAYswater 3738).

Mr. Hugh M. Hughes [*A*] has removed from 'Cartrelfe', Coychurch Road, Pencoed, to 11 Fairfield Road, Bridgend, Glam.

The new address of **Mr. Zahir-ud-Deen Khwaja** [*A*] is Architect and Town Planner, Thal Development Authority, Jauharabad District, Sargodha, Pakistan.

PRACTICES AND PARTNERSHIPS WANTED AND AVAILABLE

Associate, varied experience, seeks partnership or position leading thereto, Yorkshire preferably. Capital available. Box 71, c/o Secretary, R.I.B.A.

Associate, B.A. (43), experienced in domestic/agricultural work, seeks partnership or position leading thereto, in rural practice, southern counties, preferably Sussex. Some capital available. Box 72, c/o Secretary, R.I.B.A.

Associate, in practice, 18 years' experience, wishes to buy a partnership in small practice, or take over from a retiring architect. London area. Box 73, c/o Secretary, R.I.B.A.

Associate with small West End, London, practice, in excellent position, desires to enter into partnership with young architect with varied experience, contemporary outlook and some capital or clients. Box 74, c/o Secretary, R.I.B.A.

ACCOMMODATION

To let: Architect's furnished office, 200 sq. ft., in W.1 district, London. Ground floor. Inclusive rent with lighting and heating £200 p.a. Telephone and clerical assistance by arrangement. Box 69, c/o Secretary, R.I.B.A.

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